Susan Gouthro

Properties and Uses of Nova Scotia Clays and Shales

Economic Geology Series 89-1

Nova Scotia

Department of
Mines and Energy

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TABLE OF CONTENTS

Page

Abstract 1
Introduction 1
General Geology 1
Types and Distribution of Clays and Shales 4
Clay Production in Nova Scotia 5
Sampling and Testing Procedures 5
  Sampling 5
  Physical Tests 5
  General Testing Procedures 5
Individual Sample Data 9
  Annapolis County 9
  Antigonish County 29
  Cape Breton County 37
  Colchester County 43
  Cumberland County 57
  Digby County 197
  Halifax County 201
  Hants County 204
  Inverness County 228
  Kings County 256
  Pictou County 258
  Richmond County 272
  Victoria County 275
References 283
Appendix 1. Criteria used in evaluating pottery clay 285
Appendix 2. Criteria used in evaluating structural clay 286
Appendix 3. Criteria used in evaluating lightweight aggregate clay 288

LIST OF FIGURES

Figure 1. County map of Nova Scotia 2
Figure 2. General geological map of Nova Scotia 3
Figure 3. Key map to location of Figures 5-60 6
Figure 4. Annual production of clay and shale 1930-1987 6
Figure 5. Location map for samples CP-54, 55, 100-102 (Granville Centre) 10
Figure 6. Location map for sample CP-56 (Bridgetown) 13
Figure 7. Location map for samples CP-57-60, CSP-160, 163, 164 (Middleton) 15
Figure 8. Location map for sample CP-99 (Annapolis Royal) 20
Figure 9. Location map for sample CSP-167 (Lawrencetown) 28
Figure 10. Location map for samples CP-14, 63 (St. Andrews) 30
Figure 11. Location map for samples CP-15, 23-25 (Antigonish Harbour) 32
Figure 12. Location map for samples CP-92, 94 (New Waterford) 38

Page

Figure 13. Location map for sample CP-95 (Sydney Mines) 40
Figure 14. Location map for sample CP-97 (Big Beach) 42
Figure 15. Location map for sample CP-13 (Debert) 44
Figure 16. Location map for samples CP-17-21 (Stewiacke River) 46
Figure 17. Location map for sample CP-22 (Little Bass River) 52
Figure 18. Location map for samples CP-26-28 (East New Annan) ... 54
Figure 19. Location map for samples CP-29,47; CSP-104, 105 (East Advocate) 58
Figure 20. Location map for samples CSP-8, 9 (Salem) 61
Figure 21. Location map for samples CSP-10-12, 71 (Maccan River) 64
Figure 22. Location map for samples CSP-13-15, 17, 20-23, 29, 35, 36, 38, 39 (Cumberland Basin) 68
Figure 23. Location map for samples CSP-18, 72-74, 90, 92 (River Hebert) 73
Figure 24. Location map for samples CSP-43, 47, 50-56, 58-70, 75-84, 86-88, 93-98, 103 (Joggins) 84
Figure 25. Location map for samples CSP-99-101, 127-131 (Shulie) 132
Figure 26. Location map for sample CSP-102 (Sand Cove) 140
Figure 27. Location map for samples CSP-106, 107 (Two Islands) 140
Figure 28. Location map for sample CSP-108 (Fox Point) 143
Figure 29. Location map for samples CSP-109-111, 132 (Black Rock) 144
Figure 30. Location map for samples CSP-112-126 (Parrsboro) 148
Figure 31. Location map for sample CSP-133 (Seagrove) 168
Figure 32. Location map for samples CSP-134-137, 150-152 (Pugwash) 170
Figure 33. Location map for samples CSP-138-140 (Hansford) 175
Figure 34. Location map for samples CSP-143, 153 (North Middleboro) 179
Figure 35. Location map for samples CSP-144-146 (Shinimicas River) 180
Figure 36. Location map for samples CSP-147-149 (Linden) 184
Figure 37. Location map for samples CSP-154-158 (Wallace Harbour) 192
Figure 38. Location map for sample CP-61 (Digby Neck) 198
Figure 39. Location map for sample CP-62 (Gilberts Cove) 200
Figure 40. Location map for samples CP-35, 36, 39-43, 52 (Milford Station) 202
Figure 41. Location map for samples CP-30-34, 44-46, 48 (Shubenacadie) 205
Figure 42. Location map for samples CP-37, 38 (MacPhees Corner) 212
Figure 43. Location map for samples CP-49, 50 (Enfield) 224
Figure 44. Location map for sample CP-51 (Lantz) 227
Figure 45. Location map for samples CP-64-69 (Port Hood, Cape Breton Island) 229
Figure 46. Location map for samples CP-70-72 (Little Judique Harbour, Cape Breton Island) 236

Page

Figure 47. Location map for samples CP-75, 76 (Lake Ainslie, Cape Breton Island) 240
Figure 48. Location map for samples CP-77, 78, 98 (River Denys, Cape Breton Island) 243
Figure 49. Location map for samples CP-79-81 (Inverness, Cape Breton Island) 246
Figure 50. Location map for sample CP-82 (Broad Cove, Cape Breton Island) 251
Figure 51. Location map for samples CP-84, 85 (North East Margaree, Cape Breton Island) 251
Figure 52. Location map for sample CP-86 (Kingross, Cape Breton Island) 254
Figure 53. Location map for sample CP-53 (Morden) 257
Figure 54. Location map for samples CP-1-5, 8, 11, 12, 16 (Stellarton) 259
Figure 55. Location map for sample CP-6 (Thorburn) 265
Figure 56. Location map for sample CP-10 (Durham) 268
Figure 57. Location map for samples CP-103, 104 (St. Peters, Cape Breton Island) 273
Figure 58. Location map for samples CP-87-89 (Estmere, Cape Breton Island) 276
Figure 59. Location map for sample CP-90 (Faders Pt., Cape Breton Island) 280
Figure 60. Location map for sample CP-91 (Black Rock Pt., Cape Breton Island) 282

ABSTRACT

To determine uses for Nova Scotia clays and shales 266 samples were collected from numerous surface exposures in several areas of the Province. Tests were performed on 224 of the more promising clays and shales, results of which are found under Individual Sample Data.

The following variables were determined and presented for each sample in this report: (1) unfired characteristics such as workability, plasticity, water of plasticity, and drying shrinkage, and (2) fired characteristics such as pyrometric cone equivalent (P.C.E.), absorption, shrinkage, colour and hardness. From these results an evaluation was made indicating that 151 samples have the potential for one or more of the following uses: face brick, common brick, floor tile, roofing tile, chimney tile, hollow tile, decorative brick, artware, earthenware, structural products, terra cotta, refractories, conduit and sewer pipe, and lightweight aggregate.

INTRODUCTION

The Nova Scotia Department of Mines and Energy has in its files numerous reported occurrences of clay and shale throughout the Province. The purpose of this report is to compile all data on samples taken from every reported clay and shale occurrence in Nova Scotia covering 13 counties and 10 geological units.

The samples and data are presented by counties which are listed alphabetically (Fig. 1). Samples collected in the Musquodoboit Valley area of Halifax County were excluded from this report because they are unique in the fact that the clays are of Cretaceous age and results from extensive work done on these occurrences have already outlined two deposits of clay and interbedded silica sand (Fowler, 1972; Wright, 1969a).

Included in this report are samples from a Nova Scotia Department of Mines study on Cumberland County clay and shale (Wright, 1969b) and a report on Kings, Annapolis and Digby Counties clay and shale (Fowler, 1967) and the results of an extensive clay and shale program by R. Wambolt and G. Dickie in 1973.

GENERAL GEOLOGY

A general geology map, which classifies the rocks of Nova Scotia according to age, is shown in Figure 2. The legend lists the major rock types occurring within each of the age groups. Each clay and shale sample in this report is identified with an age and a specific geological unit. For a more detailed look at the geology of the Province the reader is referred to the Geological Map of Nova Scotia (Keppie, 1979).

Nova Scotia is underlain by rocks ranging in age from Precambrian, the oldest, to Cretaceous, the youngest. The Province lies within the Appalachian Mountain System that extends from Alabama to Newfoundland. The region underwent extensive deformation during the Taconian Orogeny of

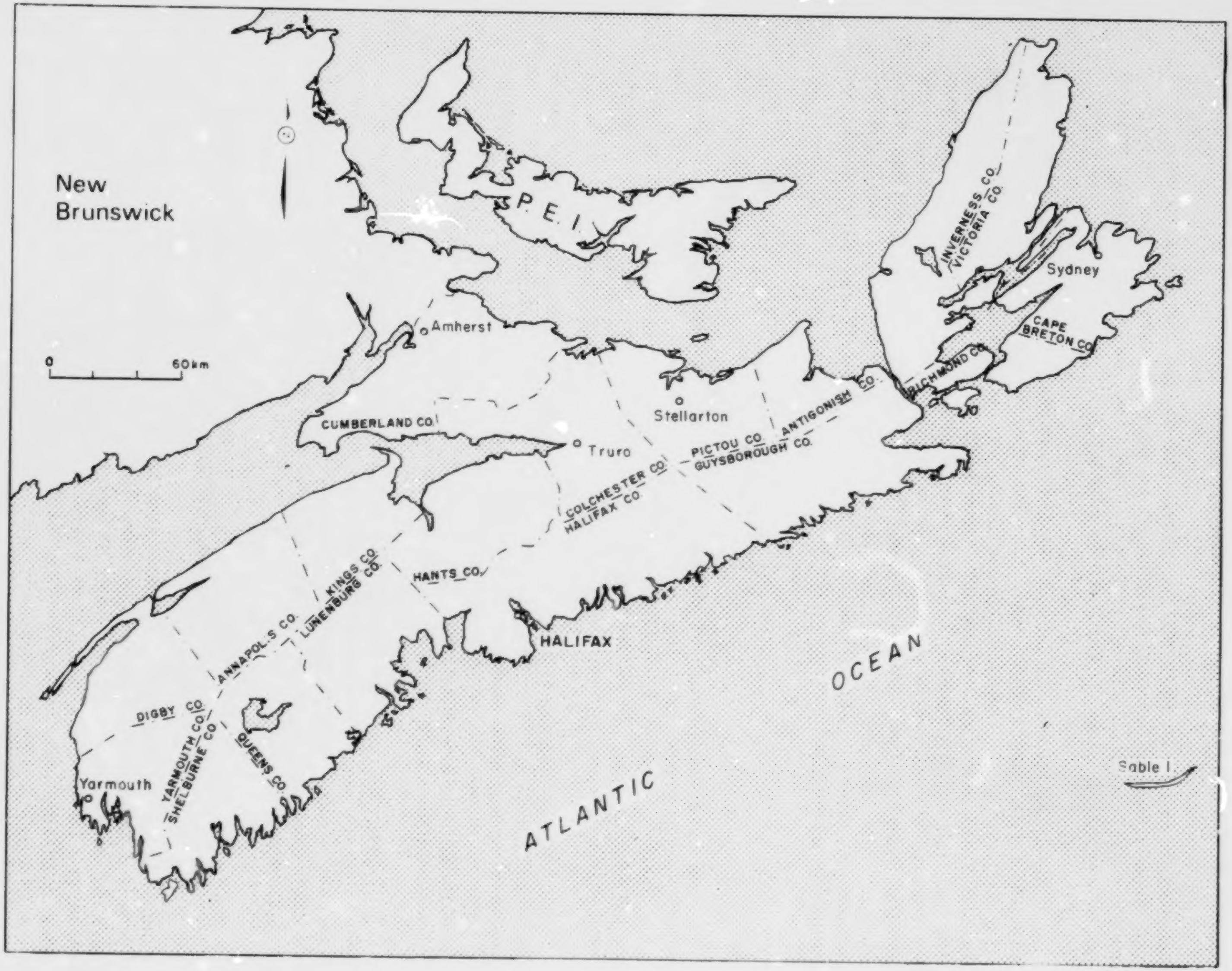
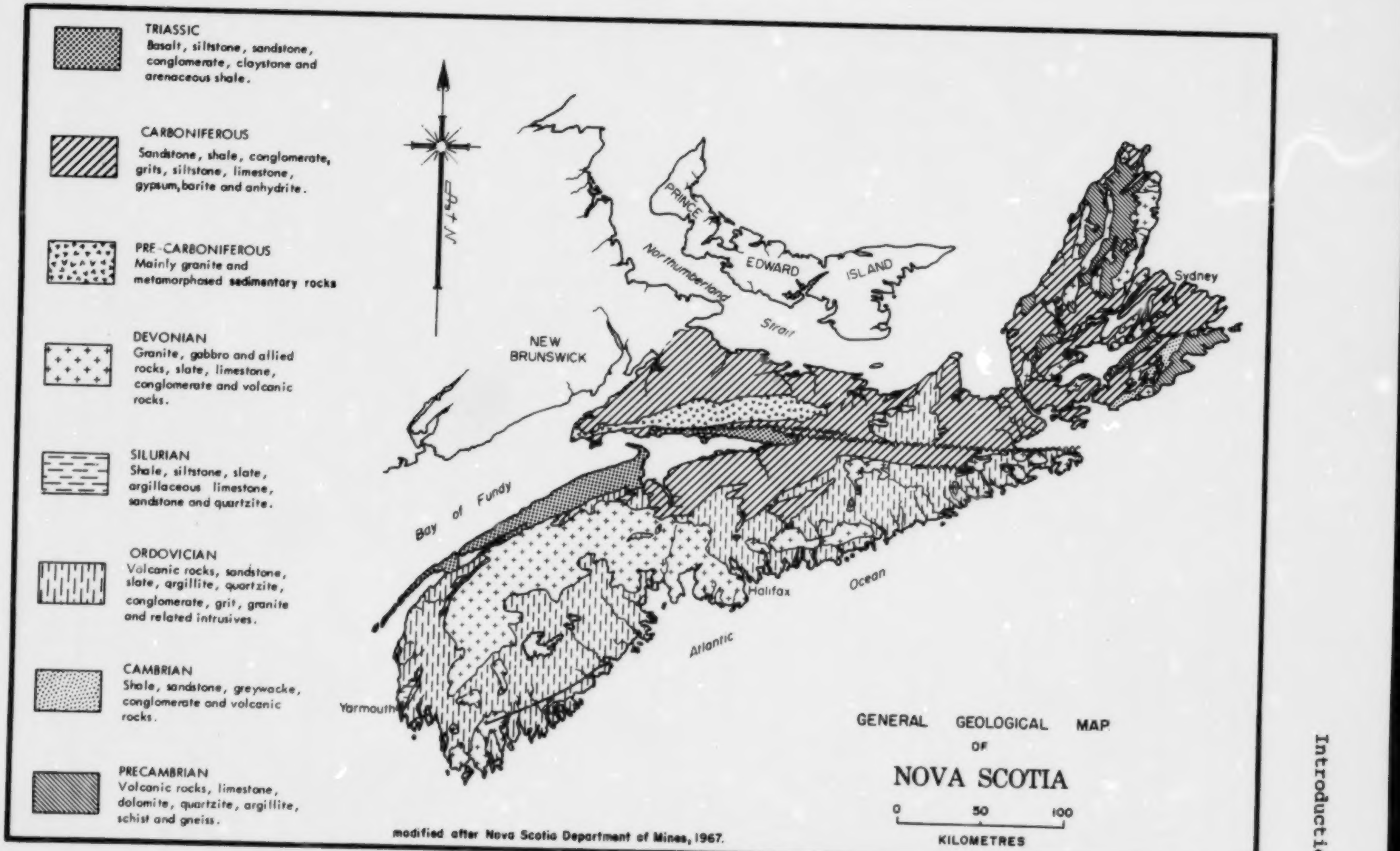

New Brunswick
0
60km
P.E.I.
Amherst
CUMBERLAND CO.
Truro
Stellarton
COLCHESTER CO.
HALIFAX CO.
PICTOU CO.
GUYSBOROUGH CO.
ANTIGONISH CO.
INVERNESS CO.
VICTORIA CO.
Sydney
CAPE BRETON CO.
RICHMOND CO.
KINGS CO.
LUNENBURG CO.
HANTS CO.
HALIFAX
ANNAPOLIS CO.
DIGBY CO.
YARMOUTH CO.
SHELBURNE CO.
QUEENS CO.
Yarmouth
ATLANTIC
OCEAN
Sable I.

Figure 1. County map of Nova Scotia


TRIASSIC
Basalt, siltstone, sandstone, conglomerate, claystone and arenaceous shale.
CARBONIFEROUS
Sandstone, shale, conglomerate, grits, siltstone, limestone, gypsum, barite and anhydrite.
PRE-CARBONIFEROUS
Mainly granite and metamorphosed sedimentary rocks
DEVONIAN
Granite, gabbro and allied rocks, slate, limestone, conglomerate and volcanic rocks.
SILURIAN
Shale, siltstone, slate, argillaceous limestone, sandstone and quartzite.
ORDOVICIAN
Volcanic rocks, sandstone, slate, argillite, quartzite, conglomerate, grit, granite and related intrusives.
CAMBRIAN
Shale, sandstone, greywacke, conglomerate and volcanic rocks.
PRECAMBRIAN
Volcanic rocks, limestone, dolomite, quartzite, argillite, schist and gneiss.
NEW BRUNSWICK
PRINCE EDWARD ISLAND
Northumberland Strait
Bay of Fundy
Sydney
Halifax
Yarmouth
Atlantic Ocean
GENERAL GEOLOGICAL MAP OF
NOVA SCOTIA
0
50
100
KILOMETRES

modified after Nova Scotia Department of Mines, 1967.

Figure 2. General geological map of Nova Scotia

Late Ordovician age, and in the Devonian during the Acadian Orogeny. At the close of the Paleozoic the Appalachian Orogeny had only local affects on the rocks of Nova Scotia.

Precambrian rocks in the Province are mostly concealed under Paleozoic and younger strata except in the Cape Breton Highlands and eastern half of Cape Breton Island. The rocks are folded and faulted metasediments and complex igneous intrusions.

Numerous areas of the Province are underlain by Carboniferous rocks. On Cape Breton Island and the northern mainland the Pennsylvanian strata have long been of considerable economic significance for their coal deposits.

On the northern mainland the Pictou-Antigonish Upland is underlain by metamorphosed sedimentary, volcanic and intrusive rocks of Ordovician age. Tilted and folded Silurian sedimentary rocks are exposed in Antigonish County and are underlying younger rocks, only on the mainland. Triassic and Jurassic age rocks are restricted to the shores of Minas Basin and Cobequid Bay in the north, and to the Annapolis Valley in the south. In the Valley they occupy a narrow band of sedimentary rocks overlain by amygdaloidal basalt which forms the North Mountain Upland.

Extending from Yarmouth County to Guysborough County (Fig. 1) on the southern mainland is a thick package of closely folded quartzitic greywacke and slate of Ordovician age. A broad irregular belt of Devonian intrusives, chiefly granitic, intruded these sedimentary rocks here and throughout Cape Breton Island.

Cretaceous deposits of clay, quartz-sand and lignite occur in the Musquodoboit/Shubenacadie area of Halifax County (Fig. 1) and in southern Cape Breton Island. They are overlain by Pleistocene boulder clay which covers most of the bedrock in Nova Scotia.

TYPES AND DISTRIBUTION OF CLAYS AND SHALES

On the key map to the location of figures (Fig. 3) the areas that were sampled are plotted showing the distribution of the Province's clays and shales. They occur within the Carboniferous and Triassic age rocks as seen on the geology map (Fig. 2). Pleistocene clays are included on Figure 3, but are not found on the geology map.

Residual clay is formed by the decomposition of rocks, a product of the soil forming process. In glaciated regions, such as Nova Scotia, they are extremely rare. There was a report of white residual clay on Coxheath Mountain in Cape Breton Island (Ries and Keele, 1911), however this occurrence could not be located during this study.

Pleistocene clays have a widespread occurrence in the Province. They were formed indirectly by glacial runoff, composed of material derived from the ice, but deposited by water, therefore stratified.

Cretaceous clay and silica sand, although not included in this report, are an important type of occurrence. Classified as estuarine, the interbedded clay and silica sand were laid down in a shallow area of the sea during the latter part of the Mesozoic.

CLAY PRODUCTION IN NOVA SCOTIA

The clay and shale industry of Nova Scotia has been active for over 100 years. In most cases the early operations were small and supplied local demand. Production has ranged from 566 t (combined clay and shale) per year in 1925 to a high of 70 515 t per year in 1960 (Fig. 4).

At present (1988) two clay pits are operating in the Province. A red plastic clay is taken from a pit in Lantz, and a grey clay from Shubenacadie, both in Hants County. Combined, they produced a total of 26 500 t of clay in 1987. Shale is quarried at Milford, Hants County and New Glasgow, Pictou County. Figures for 1987 show a total of 17 700 t of shale produced from the two quarries. All four sites are owned and operated by L. E. Shaw Limited. Raw materials from the four operations are brought to the company plant at Lantz where they are used in the manufacturing of brick and tile.

SAMPLING AND TESTING PROCEDURES

Sampling

The sampling program consisted of collecting 4.5 kg samples from each occurrence and plotting locations on 1:50 000 topographical maps. Whenever feasible channel samples were collected, if not, a grab sample was obtained. Notes concerning the raw properties, such as general description, colour, and prominent features were taken at each sample location. Dimensions of the exposure and attitude of bedding were recorded whenever possible. All of these notes accompany the Individual Sample Data section of this report.

Physical Tests

Samples were delivered to the Technical University of Nova Scotia in Halifax for analysis. The procedures used are those employed by the Ceramic Section of the Laboratory for the Investigation of Minerals (C.L.I.M.) for the evaluation of clays and shales. These procedures are standard in the ceramic laboratories of the Department of Mines and Technical Surveys, Ottawa, and also meet the standards set by the American Society for Testing Minerals (A.S.T.M.).

General Testing Procedures

The samples received are dried for 24 hours at 110°C in a convection dryer. The presence of stones, colour, and the nature of the material is

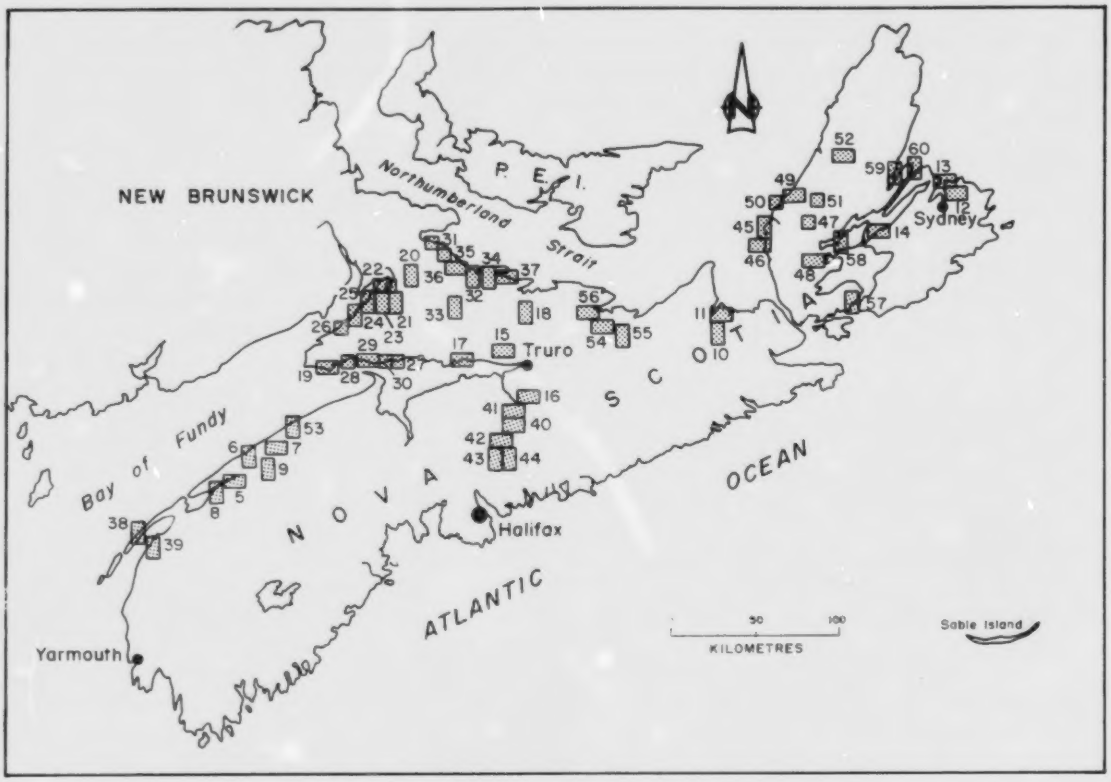

NEW BRUNSWICK
P. E. I.
Northumberland Strait
Bay of Fundy
N O V A S C O T I A
ATLANTIC OCEAN
Truro
Halifax
Sydney
Yarmouth
Sable Island
KILOMETRES
50
100
5
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Figure 3. Key map to location of Figures 5-60

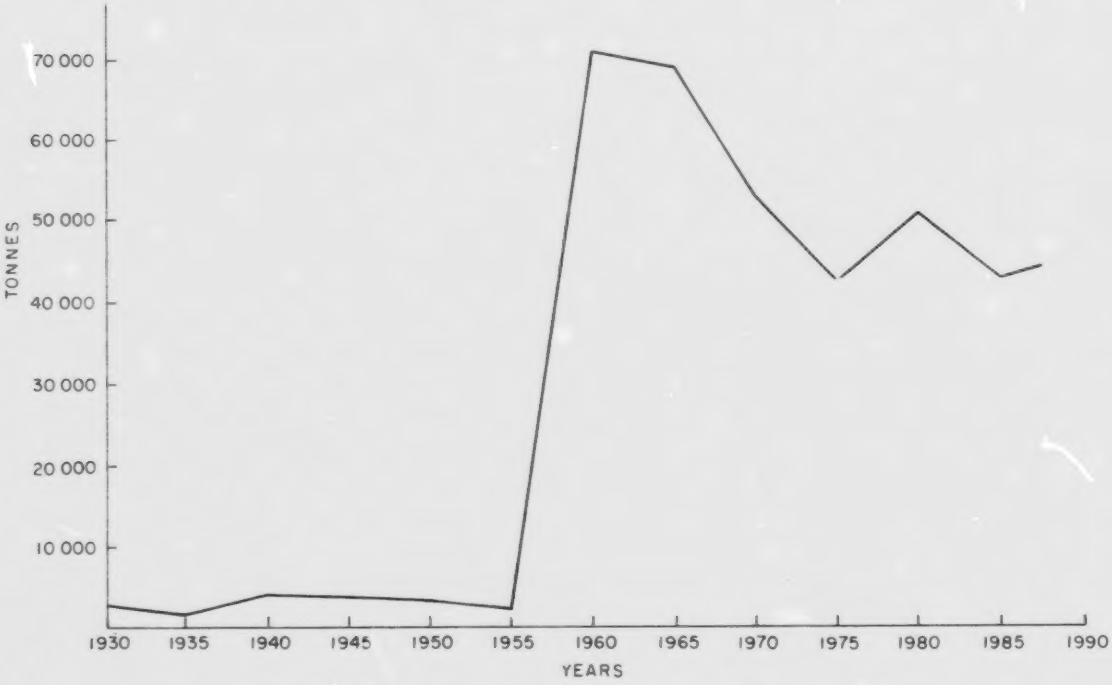


Figure 4. Annual production of clay and shale 1930-1987

determined. Carbonates in the sample are detected by using dilute (20%) hydrochloric acid. The sample is then ground to pass a 16 mesh Tyler screen.

After grinding, a differential thermal analysis (D.T.A.) curve is obtained. The curve gives a good indication of mineralogical content, and outlines the temperature range and extent of exothermic and endothermic reactions which occur during firing. The clay mineral present in an argillaceous material has a definite bearing on its physical properties, for example low fusion clays are often illitic, chloritic or mixed layers of various clay minerals. Additional materials such as pyrite, calcite, dolomite, quartz, and carbonaceous material often have a marked effect on the raw and fired properties or on the firing schedule necessary to fire the clay properly. After the D.T.A. curve is established the dried and ground clay is tempered with water to determine per cent water of plasticity, workability and plasticity.

The next step in the procedure is making briquettes for air drying and shrinkage calculations. The briquette, which measures 10 cm by 3.8 cm by 2.5 cm, is air dried for 24 hours. Abnormal properties such as warping or scumming are noted. Air shrinkage is determined by measuring marks put on the briquette before and after it is dried. Another briquette is placed in a dryer at 85°C to determine if any cracking will occur with rapid drying.

The pyrometric cone equivalent (P.C.E.) is now determined, before firing can take place. The P.C.E. of a clay or shale is commonly referred to as the fusion point, softening point, deformation point, or melting point. It is determined by preparing a pyramidal test cone and heating it along with the standard pyrometric cones. The P.C.E. is the number of the standard cone whose tip touches the supporting plaque at the same time as that of the material being tested.

When the P.C.E. has been determined the briquette is ready to be fired. Temperatures are now selected for the firing of the sample. The most frequently used temperatures are cones 08, 06, 04, 02, and 2, since most requirements for ceramic ware are within 982°-1204.4°C. Standard pyrometric cones are usually used in order to know when firing is complete. By using one cone standard higher and one lower than the known cone of the sample, it is possible to tell if the sample has been overfired or underfired.

The briquettes and standard cones are placed in a furnace programmed to rise at a rate of 60°C or 150°C per hour. The firing is complete when the cone to which the samples are fired is down. The furnace is turned off and allowed to cool for 24 hours. When the briquettes are cooled to room temperature the colour and hardness are recorded and fired shrinkage is measured.

To determine per cent absorption the briquettes are now placed in water and allowed to soak for 24 hours. They are then wiped and weighed (wet weight). After drying for 24 hours at 110°C the briquettes are weighed (dry weight). They are then dried and weighed again until a constant weight is attained giving the per cent absorption.

INDIVIDUAL SAMPLE DATA

ANNAPOLIS COUNTY

Sample Number
CP-54

TOPOGRAPHICAL SHEET: 21A/14

LOCATION: On the northern side of the Annapolis River at Belleisle, approximately 8 km west of Bridgetown (Fig. 5).

UTM: 311320 E
4964140 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Banded, red clay with extensive carbonaceous material and muscovite, easily seen on the bedding planes. The clay outcrops intermittently along the shore for about 61 m, becoming sandy and brown to the east.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Vertical channel sample from the top 15 cm of clay.

TYPE OF MATERIAL: Clay

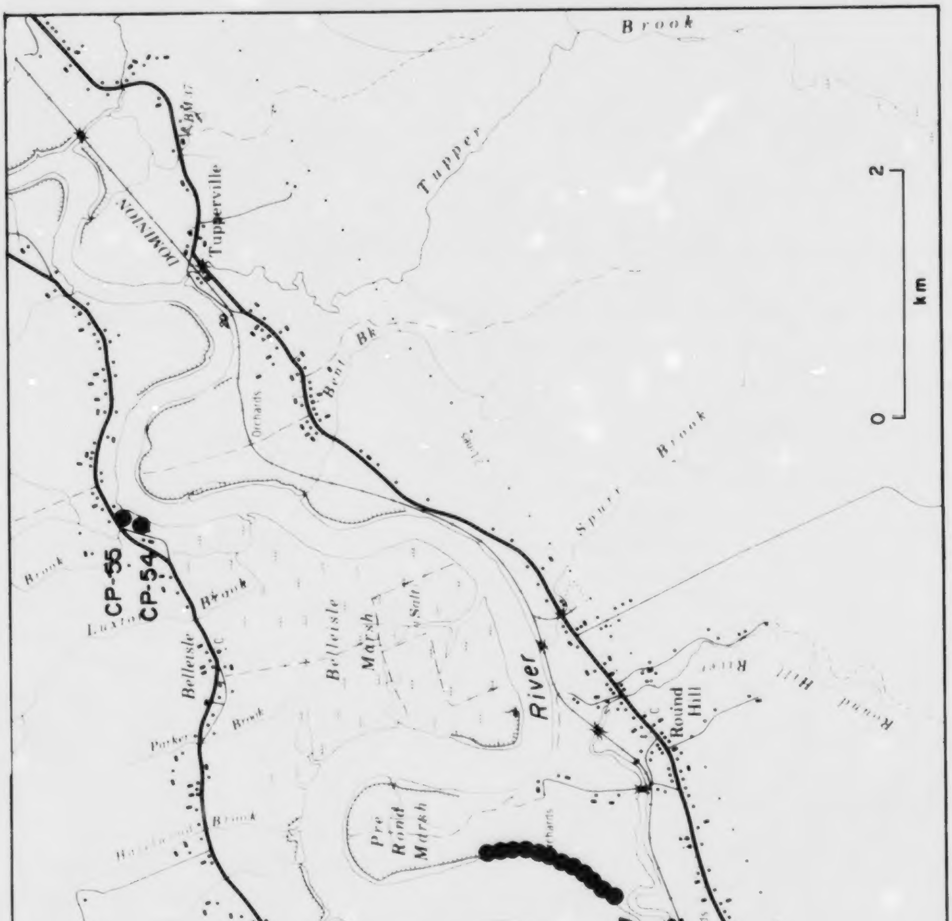
UNFIRED CHARACTERISTICS: Pale red, slightly calcareous clay containing some stones. Very good workability. Highly plastic. Water of plasticity 33.6%. Safe drying. Air shrinkage 9.3%. Modulus of rupture 334 p.s.i. Benzidine test negative.

P.C.E.: 3+ (bloated at cone 02)

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	7.59	1.48	Moderate reddish brown	Steel hard
04	8.09	0.04	Moderate reddish brown	Steel hard
02	nil	0.11	Moderate reddish brown	Steel hard

POTENTIAL USES: Common brick


CP-55
CP-54
CP-102
CP-101
CP-100
Annapolis
River
Belleisle Marsh
Pre Rond Marsh
Granville Centre
Tupperville
Round Hill
The Island
Mochelle
Belleisle
East Troop Brook
Parker Brook
Luxton Brook
Tupper Brook
Spurr Brook
Bent Bk
Round Hill River
Mills Brook
Hallow Bk
Eaton Lake
Orchards
Auto Wrecker
DOMINION
201
1
N
0
2
km

Ref. Map 21-A-14

Figure 5. Location map for samples CP-54, 55, 100-102 (Granville Centre)

ANNAPOLIS COUNTY

Sample Number
CP-55

TOPOGRAPHICAL SHEET: 21A/14

LOCATION: Near Belleisle, in Gesner Brook which flows into the Annapolis River, approximately 61 m northeast of sample CP-54 (Fig. 5).

UTM: 311300 E
4964280 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Red clay, which upon weathering becomes mottled grey and red. The clay is in excess of 91 cm thick and extends along the stream for about 31 m.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Channel sample across top 30 cm of thickness.

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Medium grey, noncalcareous clay. Poor workability. Poorly plastic. Water of plasticity 36.0%. Safe drying. Air shrinkage 5.4%. Benzidine test negative. Dark scum on top of briquettes after drying.

P.C.E.: 7-8

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
04	3.36	20.32	Moderate reddish orange	Soft to hard
02	7.19	8.24	Moderate reddish brown	Very hard
1	10.94	6.02	Moderate reddish brown	Steel hard

POTENTIAL USES: None

ANNAPOLIS COUNTY

Sample Number
CP-56

TOPOGRAPHICAL SHEET: 21A/14

LOCATION: Brickyard Road, northwest of Highway 201 approximately 1.6 km southwest of Bridgetown. The exposure is in a clay pit for a brickyard which was once operated at this site (Fig. 6).

UTM: 317750 E
4966860 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Red clay containing organic material. It has a thickness of at least 30 cm.

SAMPLE INTERVAL: Channel sample across top 30 cm of thickness

TYPE OF MATERIAL: Clay

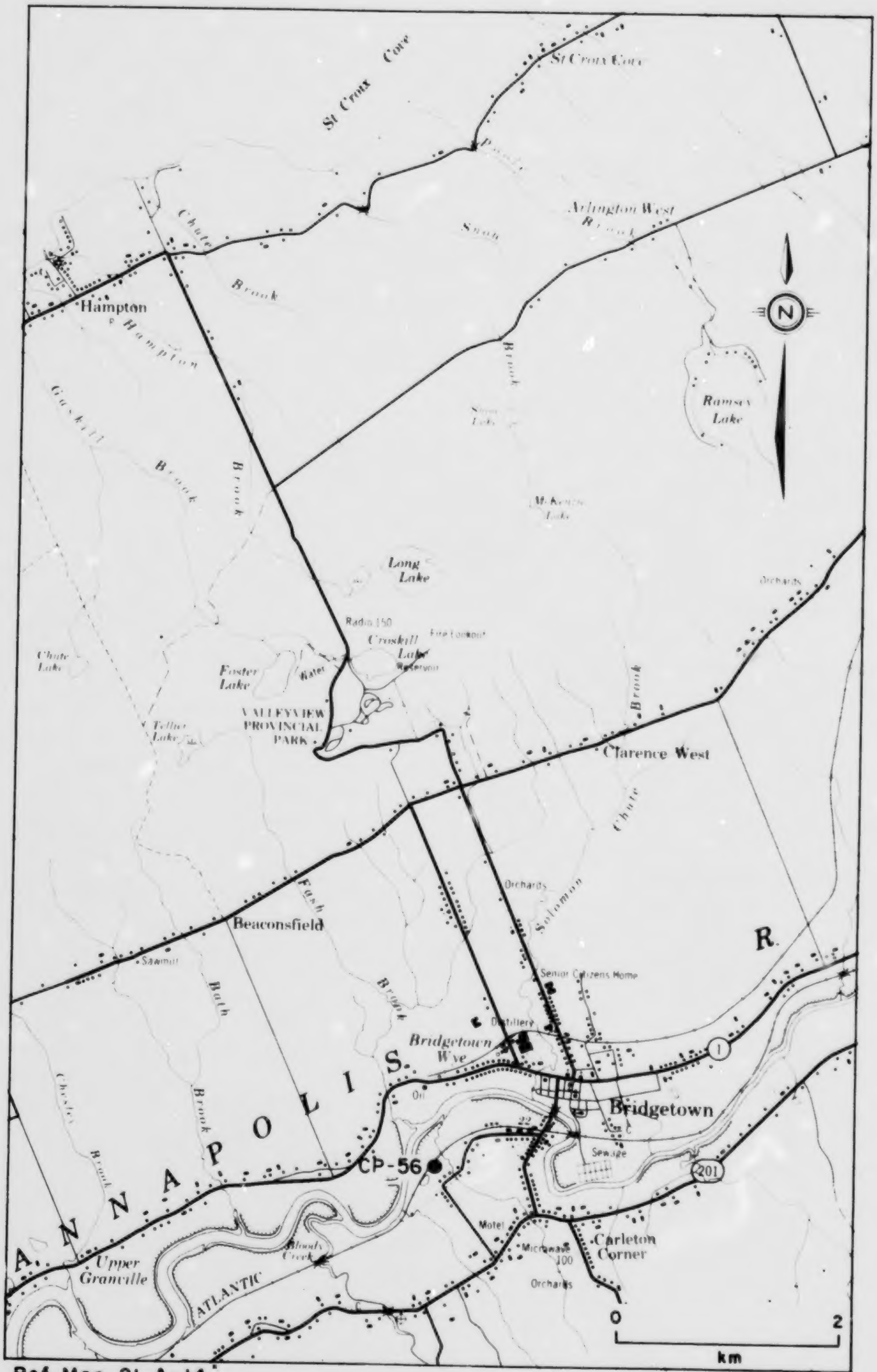
UNFIRED CHARACTERISTICS: Pale reddish-brown, calcareous clay. Very good workability. Highly plastic. Water of plasticity 34.0%. Safe drying. Air shrinkage 8.6%. Modulus of rupture 294 p.s.i. Benzidine test negative.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.55	10.79	Light mod. reddish brown	Very hard
04	4.39	7.14	Moderate reddish brown	Steel hard
02	7.86	0.50	Dark mod. reddish brown	Steel hard

POTENTIAL USES: Earthenware, artware and structural products.


St Croix Cove
St Croix Cove
Chute Brook
Arlington West
Hampton
Hampton
Gaskill Brook
Brook
Ramsey Lake
Long Lake
Radio 150
Croskill Lake
Fire Lookout
Foster Lake
VALLEYVIEW PROVINCIAL PARK
Clarence West
Brook
Chute
Orchards
Solomon
Beaconsfield
Fash Brook
Sawmill
Bath Brook
R.
Senior Citizens Home
Distillery
Bridgetown Wye
ANNAPOLIS
1
Bridgetown
Sewage
201
CP-56
Motel
Microwave 100
Carleton Corner
Orchards
Upper Granville
Bloody Creek
ATLANTIC
0
2
km
N

Ref. Map 21-A-14

Figure 6. Location map for sample CP-56 (Bridgetown)

ANNAPOLIS COUNTY

Sample Number
CP-57

TOPOGRAPHICAL SHEET: 21A/14

LOCATION: On the property of Mr. L. Simpson, about 1.6 km east of Spa Springs on Route 221. The clay outcrops in a small intermittent stream approximately 610 m northeast of Mr. Simpson's house (Fig. 7).

UTM: 339350 E
4983060 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Bluish-grey clay containing organic material and patches of red and yellow iron stains. The clay is overlain by 2-5 m of overburden, and has a thickness in excess of 46 cm.

SAMPLE INTERVAL: 46 cm channel sample

TYPE OF MATERIAL: Clay

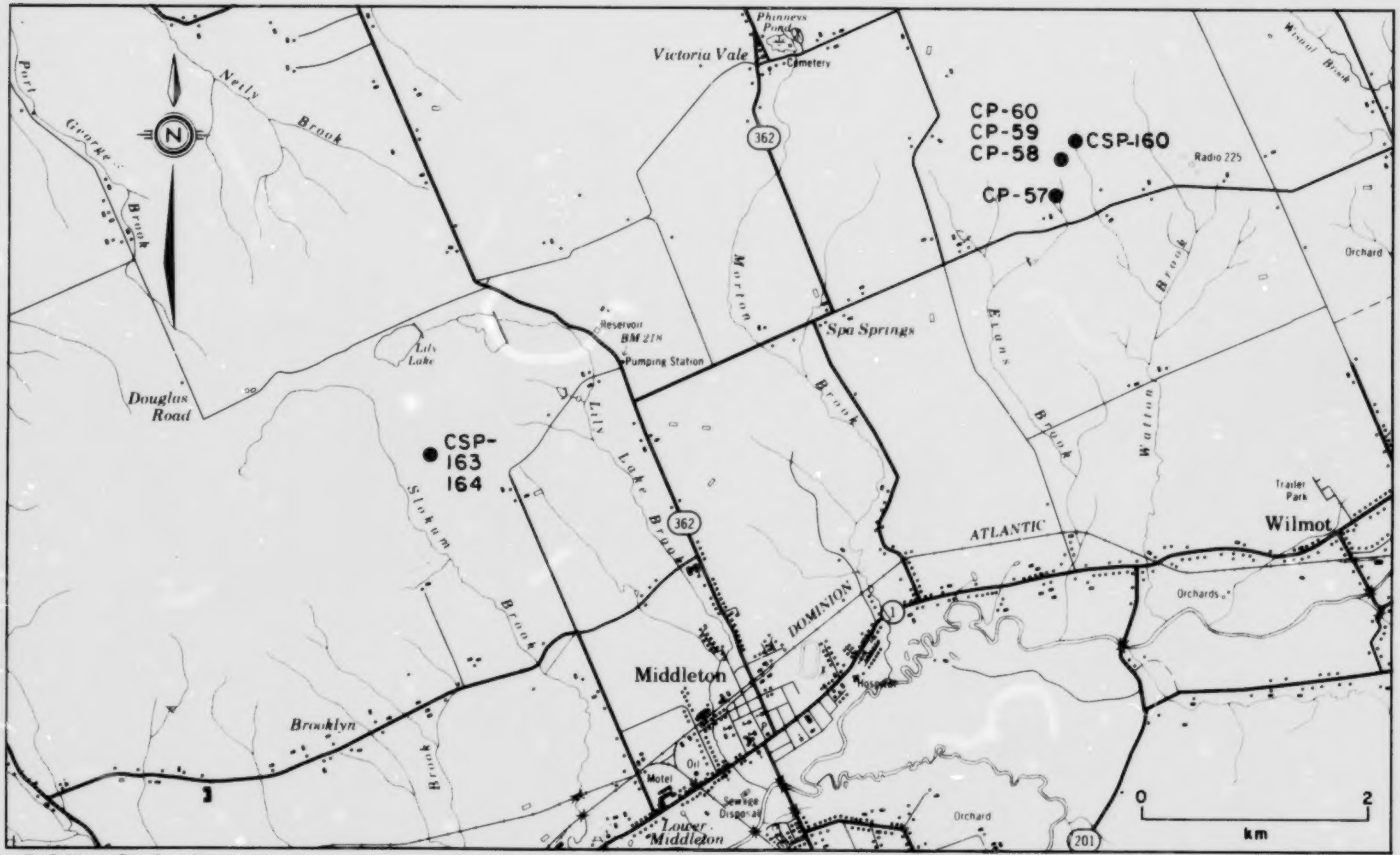
UNFIRED CHARACTERISTICS: Greyish-yellow, green with red (light brownish-grey after grinding and mixing), noncalcareous clay containing small stones. Very good workability. Highly plastic. Water of plasticity 27.2%. Safe drying. Air shrinkage 7.3%. Modulus of rupture 236 p.s.i. Benzidine test negative.

P.C.E.: 6+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.52	10.50	Moderate orange pink	Very hard
04	4.12	7.05	Pale moderate red orange	Very hard to steel hard
02	5.97	2.41	Pale reddish	Steel hard

POTENTIAL USES: Earthenware, artware and structural products.


Port George Brook
Netly Brook
N
Victoria Vale
Phinneys Pond
Cemetery
362
CP-60
CP-59
CP-58
CSP-160
CP-57
Radio 225
Orchard
Wisaul Brook
Morton Brook
Spa Springs
Evans Brook
Wallon Brook
Reservoir
BM 218
Pumping Station
Lily Lake
Douglas Road
CSP-
163
164
Slokum Brook
Lily Lake Brook
ATLANTIC
DOMINION
Trailer Park
Wilmot
Orchards
Middleton
Hospital
Brooklyn
Brook
Motel
Oil
Sewage Disposal
Lower Middleton
Orchard
201
1
0
2
km

Ref. Map 21-A-14

Figure 7. Location map for samples CP-57-60, CSP-160, 163, 164 (Middleton)

ANNAPOLIS COUNTY

Sample Number
CP-58

TOPOGRAPHICAL SHEET: 21A/14

LOCATION: On the property of Mr. R. Banks, 1.9 km northeast of Spa Springs on Route 221. The clay outcrops in small brook approximately 370 m northwest of the Banks' house (Fig. 7).

UTM: 339390 E
4983400 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Four distinguishable horizons of clay occur at this location. The uppermost horizon is 91 cm thick and consists of medium grey clay with grit. See Sample Numbers CP-59,-60.

SAMPLE INTERVAL: 91 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Light greenish-grey, noncalcareous clay containing numerous stones. Very good workability. Highly plastic. Water of plasticity 26.4%. Safe drying. Air shrinkage 5.9%. Modulus of rupture 159 p.s.i. Benzidine test positive.

P.C.E.: 6+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.19	10.67	Light mod. orange pink	Very hard
04	5.33	7.22	Light greyish orange	Steel hard
02	8.13	2.85	Greyish orange	Steel hard

POTENTIAL USES: Artware and structural products

ANNAPOLIS COUNTY

Sample Number
CP-59

TOPOGRAPHICAL SHEET: 21A/14

LOCATION: On the property of Mr. R. Banks, 1.9 km northeast of Spa Springs on Route 221. The outcrop is the same one where sample CP-58 was taken (Fig. 7).

UTM: 339390 E
4983400 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: This layer of clay directly underlies sample CP-58. It is 8 cm of dark grey clay containing lenses of black clay. The clay sampled is one of four clay horizons at this site. See Sample Numbers CP-58,-60

SAMPLE INTERVAL: 8 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Greenish-grey, noncalcareous clay containing numerous stones. Very good workability. Very plastic. Water of plasticity 24.4%. Safe drying. Air shrinkage 6.0%. Modulus of rupture 182 p.s.i. Benzidine test positive.

P.C.E.: 7

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
04	3.73	10.42	Light greyish orange	Hard
02	5.67	6.59	Greyish orange	Very hard
1	5.85	5.14	Greyish orange	Steel hard

POTENTIAL USES: Earthenware, artware and structural products

ANNAPOLIS COUNTY

Sample Number
CP-60

TOPOGRAPHICAL SHEET: 21A/14

LOCATION: On the property of Mr. R. Banks, 1.9 km northeast of Spa Springs on Route 221. The clay outcrops in a small brook about 370 m northwest of the Banks' house (Fig. 7).

UTM: 339390 E
4983400 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Four horizons of clay occur at this locality. Bluish-grey clay, 23 cm thick, was sampled as CP-60. It underlies sample CP-59. The bluish-grey clay grades down into a layer of purple clay, the lowest visible layer, which is more than 30 cm thick. See Sample Numbers CP-58, -59

SAMPLE INTERVAL: 23 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Red with some greenish-grey (pale red-purple after grinding and mixing), slightly calcareous clay with shale. Very good workability. Highly plastic. Water of plasticity 24.4%. Cracks with rapid drying at 85°C. Air shrinkage 5.7%. Modulus of rupture 137 p.s.i. Benzidine test negative.

P.C.E.: 8

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
04	3.53	11.41	Moderate orange pink	Hard
02	5.14	8.31	Salmon	Very hard
01	6.01	6.83	Salmon	Steel hard

POTENTIAL USES: Artware

ANNAPOLIS COUNTY

Sample Number
CP-99

TOPOGRAPHICAL SHEET: 21A/12

LOCATION: Annapolis Royal, on the southern side of the Annapolis River, approximately 457 m south of the causeway (Fig. 8).

UTM: 301240 E
4957920 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Grey clay containing abundant organic material. The clay exhibits extensive iron carbonate staining and shows colour banding. Visible thickness of the exposure is about 91 cm.

ATTITUDE OF BEDDING: Horizontal

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

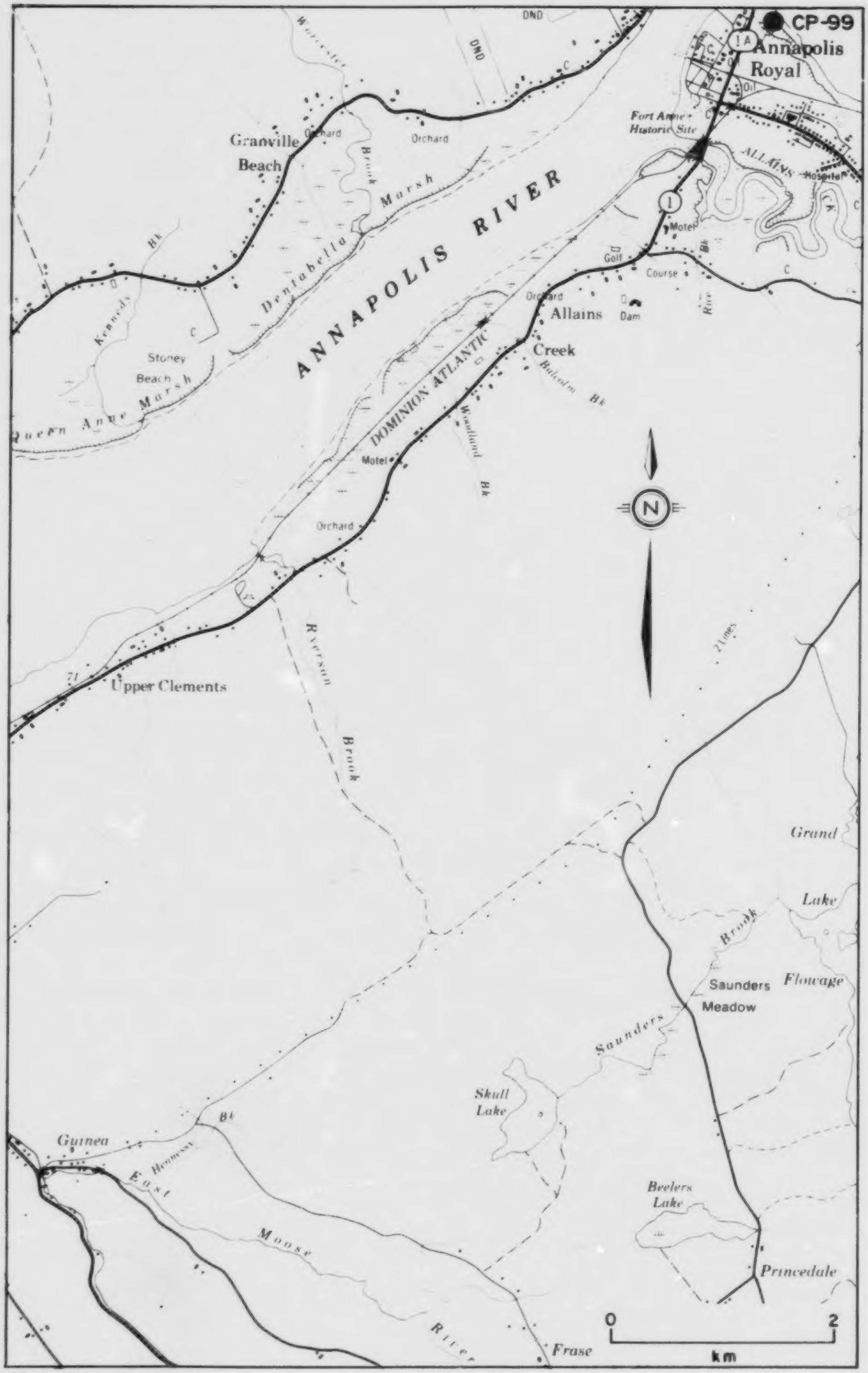
UNFIRED CHARACTERISTICS: Pale olive, slightly calcareous clay containing abundant soil material and silt. Poor workability. Poorly plastic. Water of plasticity 34.0% Safe drying. Air shrinkage 5.1%. Benzidine test negative.

P.C.E.: 4-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	7.15	11.30	Moderate reddish brown	Hard
1	5.63	12.41	Dark mod. reddish brown	Hard
3	7.25	10.22	Dark moderate red	Very hard

POTENTIAL USES: None


CP-99
Annapolis Royal
1A
Fort Anne Historic Site
Allains
Hospital
1
Motel
Golf Course
Dam
Allains Creek
Balcolm Bk
Woodland Bk
Granville Beach
Orchard
Brook
Dentabella Marsh
ANNAPOLIS RIVER
DND
Kennedy Bk
Stoney Beach
Queen Anne Marsh
DOMINION ATLANTIC
Motel
Orchard
N
Upper Clements
71
Ryerson Brook
Grand Lake Flowage
Brook
Saunders Meadow
Saunders
Skull Lake
Beelers Lake
Princedale
Guinea
Hennessy
East Moose River
Bk
Frase
0
2
km

Ref. Map 21-A-12

Figure 8. Location map for sample CP-99 (Annapolis Royal)

ANNAPOLIS COUNTY

Sample Number
CP-100

TOPOGRAPHICAL SHEET: 21A/14

LOCATION: The occurrence is on the southern side of the Annapolis River at Mochelle (Fig. 5).

UTM: 4958700 N
304970 E

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Micaceous red clay. The outcrop forms the face of a 9 m bank and follows along the floodplain of the Annapolis River.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Moderate reddish-brown, calcareous clay. Very good workability. Very plastic. Water of plasticity 28.0%. Safe drying. Air shrinkage 7.5%. Modulus of rupture 446 p.s.i. Benzidine test negative.

P.C.E.: 4-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	5.41	4.97	Light mod. reddish brown	Steel hard
04	6.27	0.53	Moderate reddish brown	Steel hard
02	6.46	0.04	Dark mod. reddish brown	Steel hard

REMARKS: Due to the apparent large extent of the material a further investiation is warranted.

POTENTIAL USES: Earthenware, artware and common brick

ANNAPOLIS COUNTY

Sample Number
CP-101

TOPOGRAPHICAL SHEET: 21A/14

LOCATION: Exposure along the northern side of the Annapolis River, approximately 3.2 km southwest of Granville Centre (Fig. 5).

UTM: 304710 E
4959370 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Micaceous, red clay which extends for about 457 m along the shore of the Annapolis River. It is overlain by 91 cm to 1.2 m of marsh mud.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Light brown, calcareous clay. Very good workability. Highly plastic. Water of plasticity 32.0%. Safe drying. Air shrinkage 7.7%. Modulus of rupture 347 p.s.i. Benzidine test negative.

P.C.E.: 3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	4.14	7.11	Lgt. mod. reddish brown	Steel hard
04	7.19	0.84	Lgt. mod. reddish brown	Steel hard
02	6.73	0.07	Lgt. mod. reddish brown	Steel hard

REMARKS: The clay appears to cover an extensive area

POTENTIAL USES: Artware and common brick

ANNAPOLIS COUNTY

Sample Number
CP-102

TOPOGRAPHICAL SHEET: 21A/14

LOCATION: Exposure along the southern side of the Annapolis River approximately 4 km west of Round Hill. The outcrop is about 152 m east of the mouth of a small tributary flowing into Annapolis River from Round Hill (Fig. 5).

UTM: 307380 E
4960270 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Blue clay containing organic material

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Grey and brown (greyish yellow-green after grinding and mixing), noncalcareous clay containing soily material. Fair workability. Fairly plastic. Water of plasticity 34.0%. Cracks with rapid drying at 85°C. Air shrinkage 5.3%. Modulus of rupture 178 p.s.i. Benzidine test negative.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	7.06	2.80	Moderate reddish brown	Very hard to steel hard
1	7.03	7.30	Moderate reddish brown	Very hard to steel hard
3	10.70	1.86	Dark reddish brown	Steel hard

POTENTIAL USES: None

ANNAPOLIS COUNTY

Sample Number
CSP-160

TOPOGRAPHICAL SHEET: 21A/14

LOCATION: On the property of Mr. R. Banks, approximately 2 km northeast of Spa Springs. The sample was taken from a trench dug 650 m north of Route 221, in a small brook (Fig. 7).

UTM: 339540 E
4983560 N

GEOLOGICAL UNIT: Clay overlying the Blomidon Formation, Late Triassic age.

DESCRIPTION: 2 m of greyish-blue clay grading into reddish-brown Blomidon Formation shale.

SAMPLE INTERVAL: Channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Good workability. Water of plasticity 28.0%. Air shrinkage 5.8%. Sample cracks with rapid drying at 85°C.

P.C.E.: 6

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1745	1.47	18.44	Light cream to white	Hard
1805	1.98	17.47	Light cream to white	Hard
1855	2.85	15.39	Light cream to white	Very hard
1900	4.09	14.37	Light cream to white	Very hard
1940	4.56	10.80	Buff	Very hard
1975	6.16	8.68	Buff	Steel hard
2005	7.13	6.50	Buff	Steel hard
2040	8.34	5.94	Buff	Steel hard
2065	9.74	3.82	Light green	Steel hard
2085	10.50	2.82	Light green	Steel hard
2100	10.65	2.31	Light green	Steel hard

POTENTIAL USES: Face brick, wall tile and terra cotta

ANNAPOLIS COUNTY

Sample Number
CSP-163

TOPOGRAPHICAL SHEET: 21A/14

LOCATION: Baker property, Brooklyn, located 3 km northwest of Middleton. The clay was exposed by trenching in a small brook channel running northwest of North Mountain (Fig. 7).

UTM: 333700 E
4981020 N

GEOLOGICAL UNIT: Clay overlying the Blomidon Formation, Late Triassic age

DESCRIPTION: The trench revealed 30 cm of highly plastic, mottled, greyish-white clay overlying 1.7 m of hard, gritty, mottled clay.

SAMPLE INTERVAL: Channel sample across the 30 cm of plastic clay

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Very good workability. Very plastic. Water of plasticity 35.6%. Air shrinkage 9.9%. Sample cracks with rapid drying at 85°C.

P.C.E.: 10

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1475	0.48	15.21	Light buff	Very hard
1550	3.35	8.74	Light buff	Steel hard
1625	4.28	4.96	Light brown	Steel hard
1695	2.81	4.60	Light brown	Steel hard
1755	2.36	0.27	Light brown	Steel hard
1810	0.10	5.34	Light brown	Steel hard
1865	bloated	5.63	Light brown	Steel hard
1915	bloated	6.21	Light brown	Steel hard
1960	bloated	7.73	Light brown	Steel hard
2005	bloated	6.17	Light brown	Steel hard
2050	bloated	7.50	Light green	Steel hard
2090	bloated	7.49	Light green	Steel hard
2135	bloated	11.49	Light green	Steel hard
2165	bloated	8.05	Light green	Steel hard

REMARKS: Contains some magnetite. Has high drying shrinkage

POTENTIAL USES: Possible use as lightweight aggregate; sample bloated from 1755°F-2165°F

ANNAPOLIS COUNTY

Sample Number
CSP-164

TOPOGRAPHICAL SHEET: 21A/14

LOCATION: Baker property, Brooklyn. Same location as CSP-163 (Fig. 7).

UTM: 333700 E
4981020 N

GEOLOGICAL UNIT: Clay overlying Blomidon Formation. Late Triassic age

DESCRIPTION: Mottled greyish-white, highly plastic clay overlying 1.7 m of mottled, hard, gritty clay

SAMPLE INTERVAL: Channel sample across the lower 1.7 m of clay

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Good workability. Good plasticity. Water of plasticity 26.6%. Air shrinkage 4.0%. Sample cracks with rapid drying at 85°C.

P.C.E.: 10

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1655	1.67	17.45	Brownish cream	Very hard
1725	2.68	15.69	Brownish cream	Very hard
1785	3.62	14.08	Brownish cream	Very hard
1845	4.51	12.80	Brownish cream	Very hard
1905	5.51	10.98	Brownish cream	Steel hard
1945	6.61	8.92	Light greenish brown	Steel hard
1995	8.02	6.95	Light greenish brown	Steel hard
2035	9.36	4.80	Light greenish brown	Steel hard
2065	10.56	3.09	Light greenish brown	Steel hard
2105	11.56	1.95	Light green	Steel hard
2130	12.08	1.28	Light green	Vitrified
2160	11.91	1.08	Light green	Vitrified
2185	11.62	1.46	Light green	Vitrified
2205	10.09	2.16	Light green	Vitrified
2225	9.04	1.67	Light green	Vitrified

POTENTIAL USES: Brick

ANNAPOLIS COUNTY

Sample Number
CSP-167

TOPOGRAPHICAL SHEET: 21A/14

LOCATION: Eel Weir Brook, approximately 400 m south of Lawrencetown (Fig. 9).

UTM: 329730 E
4970810 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Reddish-brown, pebbly, glacial clay. The exposure is 1 m thick and 3 m^2 in area.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

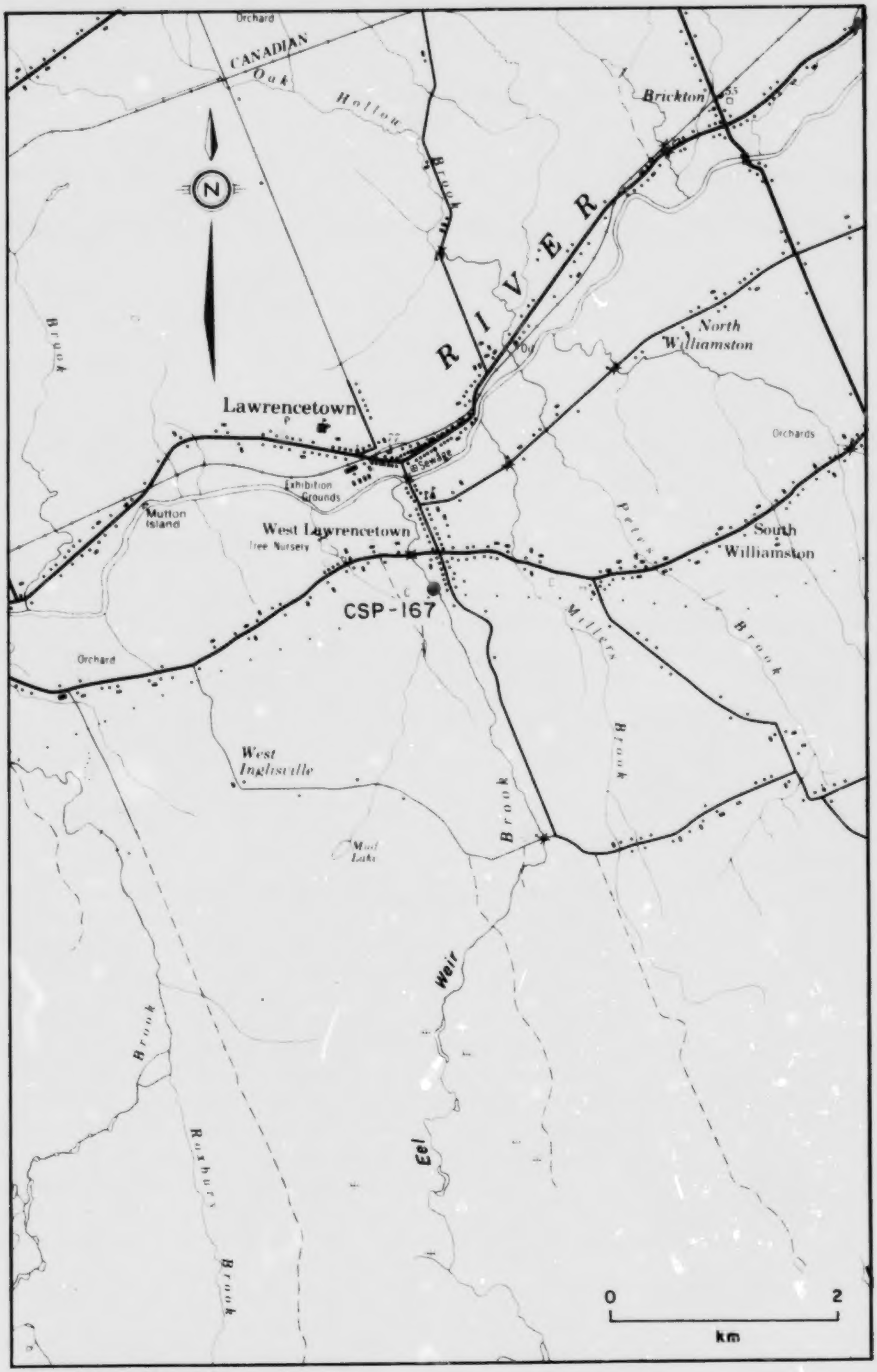
UNFIRED CHARACTERISTICS: Good workability. Good plasticity. Water of plasticity 21.6%. Air shrinkage 6.6%. Sample cracked with rapid drying at 85°C. Highly calcareous. (D.T.A. showed it was $MgCO_3$)

P.C.E.: 3

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1630	0.18	13.48	Light orange brown	Hard
1685	0.14	13.66	Light orange brown	Hard
1740	0.13	13.60	Light orange brown	Hard
1785	0.05	13.31	Light orange brown	Hard
1835	0.06	11.86	Light orange brown	Hard
1875	0.55	12.41	Medium reddish brown	Very hard
1915	1.11	10.89	Medium reddish brown	Very hard
1955	1.96	9.19	Medium reddish brown	Very hard
1990	3.13	6.63	Medium reddish brown	Very hard
2020	4.78	4.56	Dark reddish brown	Steel hard
2040	5.89	2.86	Dark reddish brown	Steel hard
2060	6.45	2.16	Dark reddish brown	Steel hard

POTENTIAL USES: Common brick


Orchard
CANADIAN
Oak Hollow Brook
Brickton
RIVER
North Williamston
Lawrencetown
Orchards
Sewage
Exhibition Grounds
Mutton Island
West Lawrencetown
Tree Nursery
South Williamston
Peters Brook
CSP-167
Millers Brook
Orchard
West Inglisville
Mud Lake
Brook
Weir
Eel
Roxbury Brook
0
2
km

Ref. Map 21-A-14

Figure 9. Location map for sample CSP-167 (Lawrencetown)

ANTIGONISH COUNTY

Sample Number
CP-14

TOPOGRAPHICAL SHEET: 11F/12

LOCATION: On the road going west from St. Andrews to South River. Exposure is in the bed of a small brook approximately 210 m south of the Chisholm farm house (Fig. 10).

UTM: 585940 E
5045230 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Thin bands of light brown to red-brown clay containing organic material. The clay is gritty with numerous small pebbles and is exposed for approximately 30 m in the brook.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Channel sample across the thickness of clay

TYPE OF MATERIAL: Clay

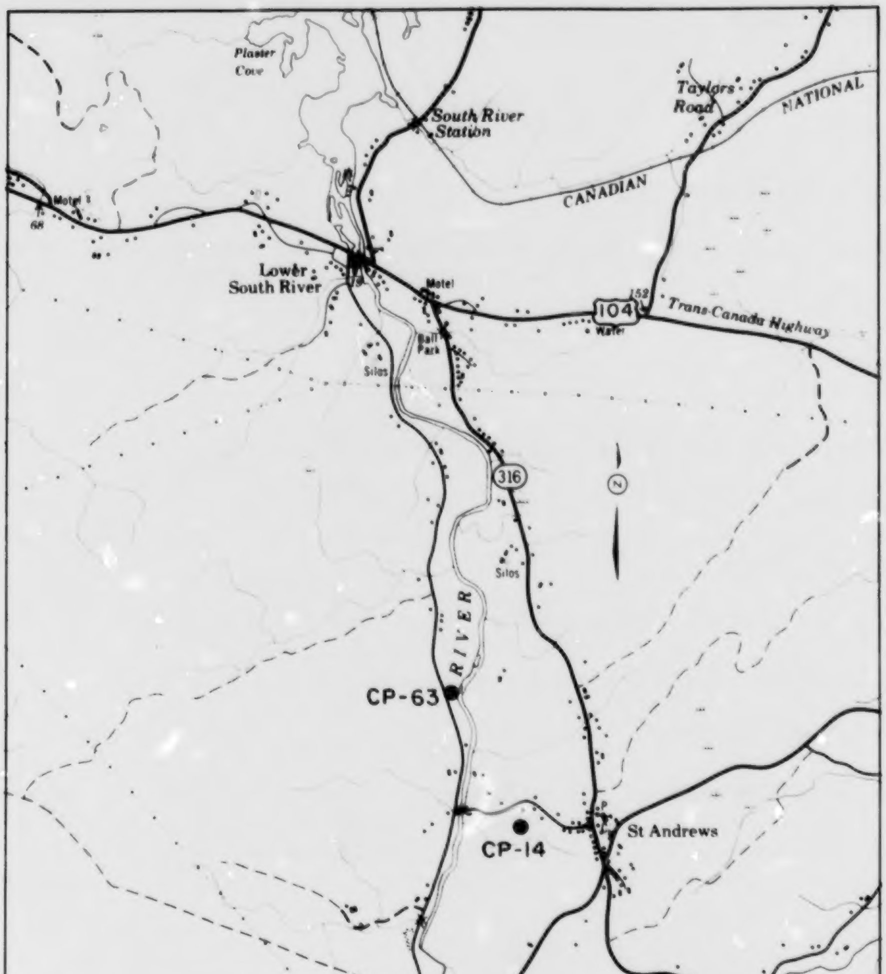
UNFIRED CHARACTERISTICS: Light brown, noncalcareous clay containing a few stones. Good workability. Plastic. Water of plasticity 28.0%. Slight cracking with rapid drying at 85°C. Air shrinkage 6.1%. Modulus of rupture 214 p.s.i. Benzidine test negative.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
05	4.10	9.90	Pale reddish brown	Hard
04	6.42	7.71	Moderate reddish brown	Very hard
02	9.42	2.72	Moderate reddish brown	Steel hard

POTENTIAL USES: Common brick, face brick, hollow tile, wall tile and sewer pipe


Plaster Cove
South River Station
Taylors Road
CANADIAN NATIONAL
Motel
68
Lower South River
Motel
104
152
Trans-Canada Highway
Ball Park
Silos
316
N
Silos
RIVER
CP-63
St Andrews
CP-14
SOUTH
Glenroy
River
Pomquet
Dunmore
316
West
Lower Springfield
0
2
km

Ref. Map 11-F-12

Figure 10. Location map for samples CP-14, 63 (St. Andrews)

ANTIGONISH COUNTY

Sample Number
CP-15

TOPOGRAPHICAL SHEET: 11F/12

LOCATION: Harbour Centre. The exposure is 21 m north of Harbour Road, approximately 9 km northeast of Antigonish (Fig. 11).

UTM: 584420 E
5060050 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: A 10 cm layer of brown clay containing organic material was first encountered by putting a soil auger through 33 cm of overburden. Underlying this is a whitish-grey clay mottled with iron carbonate stains. Both layers contain small pebbles and grit. Total thickness of the clay is 30 cm.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: 17 cm channel sample across the lower clay layer.

TYPE OF MATERIAL: Clay

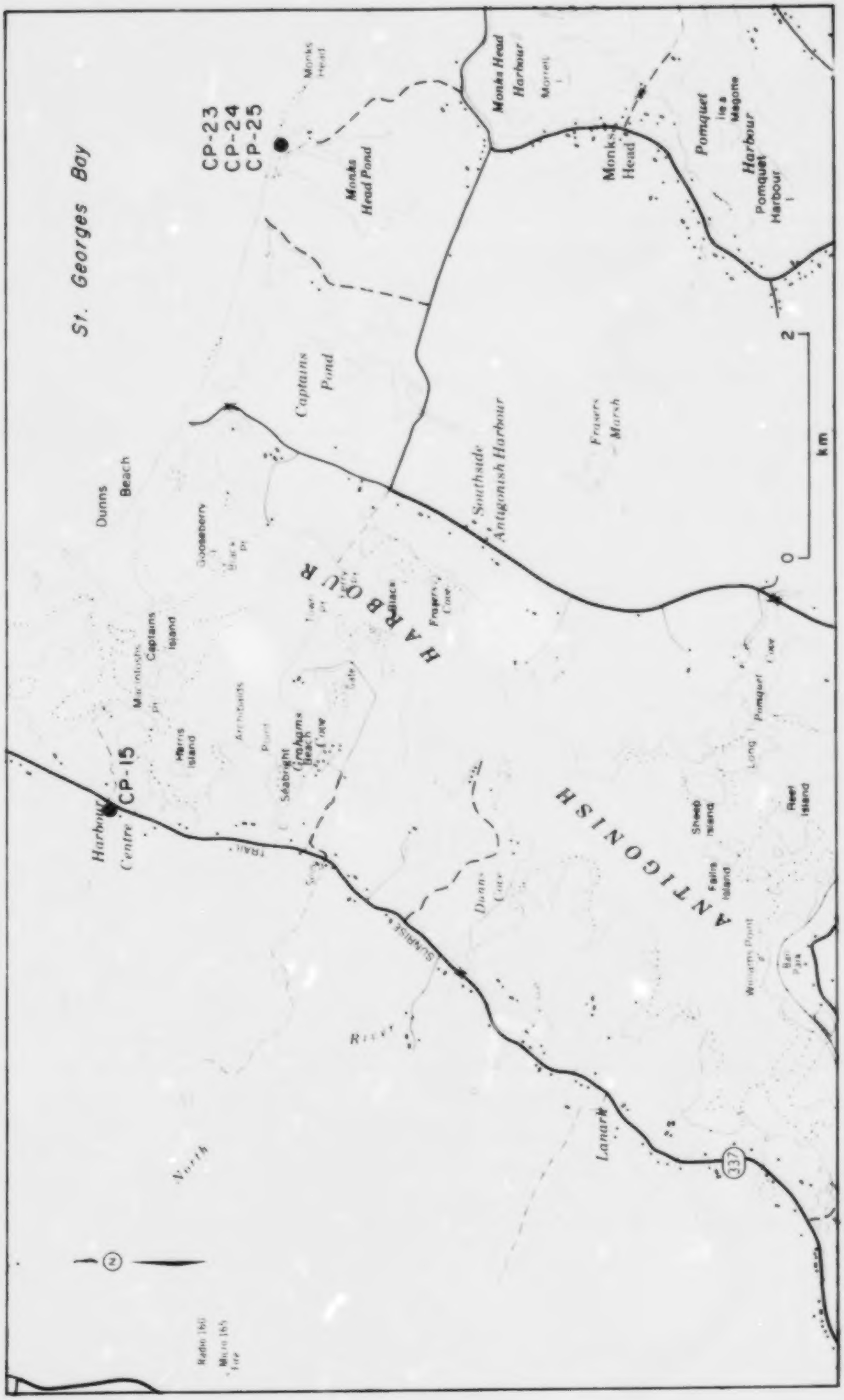
UNFIRED CHARACTERISTICS: Light grey and brown (greyish-orange after grinding and mixing), slightly calcareous clay, containing a few stones and sandy material. Good workability. Very plastic. Water of plasticity 30.5%. Slight cracking with rapid drying at 85°C. Air shrinkage 7.8%. Modulus of rupture 313 p.s.i. Benzidine test negative.

P.C.E.: 13

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
04	5.08	9.15	Moderate reddish orange	Hard
02	7.58	5.65	Moderate reddish brown	Very hard
1	7.58	4.42	Moderate reddish brown	Steel hard

POTENTIAL USES: Earthenware and most structural products.


St. Georges Bay
CP-23
CP-24
CP-25
Monks Head
Monks Head Pond
Monks Head Harbour
Monks Head
Pomquet Harbour
Pomquet Harbour
Captains Pond
Southside Antigonish Harbour
Frasers Marsh
Dunns Beach
Gooseberry
Black Pt
Captains Island
Harris Island
Archibalds Point
Seabright
Grahams Beach
Grahams Cove
Frasers Cove
HARBOUR
ANTIGONISH
CP-15
Harbour Centre
SUNRISE TRAIL
Dunns Cove
Sheep Island
Reef Island
Long Pomquet Cove
Williams Point
River
Lanark
North
337
2
Radio
Micro
Tire
0
2
km

Ref. Map 11-F-12

Figure 11. Location map for samples CP-15, 23-25 (Antigonish Harbour)

ANTIGONISH COUNTY

Sample Number
CP-23

TOPOGRAPHICAL SHEET: 11F/12

LOCATION: On the shore of St. Georges Bay approximately 800 m northwest of Monks Head (Fig. 11).

UTM: 590280 E
5058770 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Medium to light grey clay containing extensive organic material. The exposure is sporadic for 46 m along shore. This sample was taken from the uppermost of three clay horizons exposed by digging. See Sample Numbers CP-24, -25

SAMPLE INTERVAL: 18 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Yellowish-grey, noncalcareous clay. Very good workability. Highly plastic. Water of plasticity 37.5%. Safe drying. Air shrinkage 8.8%. Modulus of rupture 472 p.s.i. Benzidine test negative. Slight warping on drying.

P.C.E.: 15+

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1750	9.61	5.71	Moderate reddish brown	Steel hard
1820	10.18	3.43	Moderate reddish brown	Steel hard
1880	10.79	2.34	Moderate reddish brown	Steel hard
1945	10.86	2.21	Moderate reddish brown	Steel hard
2000	11.12	1.91	Dark reddish brown	Steel hard
2055	10.80	0.87	Dark reddish brown	Steel hard
2100	10.56	0.79	Dark reddish brown	Steel hard
2145	9.85	0.65	Dark reddish brown	Steel hard
2185	9.43	2.24	Dark yellowish brown	Steel hard
2215	8.95	2.83	Dark yellowish brown	Steel hard
2236	8.44	2.37	Dark yellowish brown	Steel hard
2255	7.60	2.46	Moderate yellowish brown	Steel hard
2272	7.23	2.56	Moderate yellowish brown	Steel hard

POTENTIAL USES: None

ANTIGONISH COUNTY

Sample Number
CP-24

TOPOGRAPHICAL SHEET: 11F/12

LOCATION: Along the shore of St. Georges Bay, approximately 800 m northwest of Monks Head (Fig. 11).

UTM: 590280 E
5058770 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Light greenish-grey clay containing pebbles and small sandy pockets. Iron carbonate stains are present along with organic material. The clay is 61 cm thick and the middle of three horizons found at this site. See Sample Numbers CP-23, -25.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: 61 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Light brown, noncalcareous clay containing stones and sandy material. Poor workability. Poorly plastic. Water of plasticity 16.0%. Safe drying. Air shrinkage 3.8%. Modulus of rupture 221 p.s.i. Benzidine test negative.

P.C.E.: 8+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
04	0.70	8.99	Light mod. reddish brown	Hard
02	2.43	6.54	Moderate reddish brown	Very hard
1	2.43	6.05	Moderate reddish brown	Very hard to steel hard

POTENTIAL USES: None

ANTIGONISH COUNTY

Sample Number
CP-25

TOPOGRAPHICAL SHEET: 11F/12

LOCATION: Along the shore of St. Georges Bay, approximately 800 m northwest of Monks Head (Fig. 11).

UTM: 590280 E
5058770 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Light yellowish-grey clay containing grit and stones. Iron carbonate stains and organic material are present. This sample represents the lower most of three horizons of clay at this site. It is 20 cm thick and grades down into sand. See Sample Numbers CP-23, -24

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: 20 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Yellowish-grey, noncalcareous clay. Fair workability. Fairly plastic. Water of plasticity 20.8%. Safe drying. Air shrinkage 5.1%. Modulus of rupture 249 p.s.i. Benzidine test negative.

P.C.E.: 12-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
04	1.58	11.0	Moderate reddish orange	Hard
02	3.87	6.37	Dark moderate reddish orange	Very hard to steel hard
1	4.75	6.47	Light moderate reddish brown	Very hard to steel hard

POTENTIAL USES: None

ANTIGONISH COUNTY

Sample Number
CP-63

TOPOGRAPHICAL SHEET: 11F/12

LOCATION: Exposure along the western bank of the South River approximately 1 km north of the bridge crossing the River, 1.2 km west of St. Andrews (Fig. 10).

UTM: 585430 E
5046520 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Brown clay containing some iron carbonate and organic material. The thickness of the clay is in excess of 30 cm.

SAMPLE INTERVAL: Channel sample across the top 30 cm of thickness

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Reddish-brown, noncalcareous clay. Good workability. Plastic. Water of plasticity 23.6%. Safe drying. Air shrinkage 6.4%. Modulus of rupture 227 p.s.i. Benzidine test negative.

P.C.E.: 4-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.50	9.32	Moderate reddish orange	Hard
04	3.91	7.36	Moderate reddish orange	Hard
02	8.16	2.43	Dark moderate reddish brown	Steel hard

REMARKS: Short firing range

POTENTIAL USES: None

CAPE BRETON COUNTY

Sample Number
CP-94

TOPOGRAPHICAL SHEET: 11K/01

LOCATION: Victoria Mines, along the eastern side of Sydney Harbour at Petries Point (Fig. 12).

UTM: 718810 E
5125200 N

GEOLOGICAL UNIT: Morien Series, Pennsylvanian age

DESCRIPTION: Medium to dark grey, fissile shale showing iron carbonate stains. Overlying and underlying the shale is a grey sandstone. The outcrop extends for a length of 15 m.

ATTITUDE OF BEDDING: 250°/34° NW

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

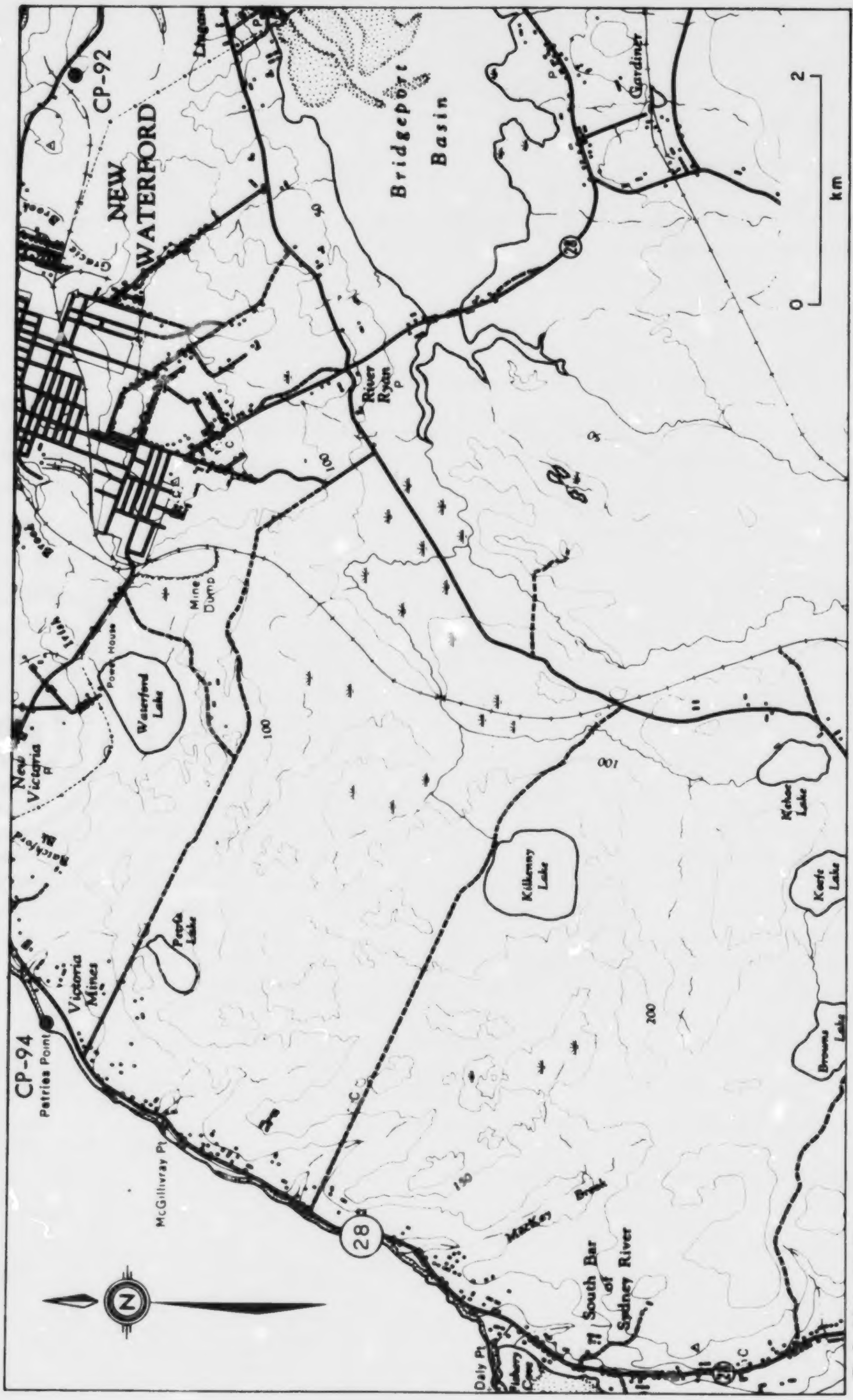
UNFIRED CHARACTERISTICS: Light grey, slightly calcareous shale. Good workability. Plastic. Water of plasticity 18.8%. Safe drying. Air shrinkage 4.4%. Modulus of rupture 114 p.s.i. Benzidine test positive.

P.C.E.: 9-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.62	9.73	Light moderate reddish brown	Very hard
04	4.37	6.65	Moderate reddish brown	Very hard to steel hard
02	6.10	4.19	Moderate reddish brown	Steel hard

POTENTIAL USES: Structural products


CP-92
NEW WATERFORD
CP-94
Petries Point
Victoria Mines
New Victoria
Waterford Lake
Power House
Mine Dump
River Ryan
Bridgeport Basin
Gardiner
Kilkenny Lake
Kehoe Lake
Keefe Lake
Browns Lake
Peat Lake
McGillivray Pt
South Bar of Sydney River
MacKay Brook
Daly Pt
28
100
200
150
0
2
km
N

Ref. Map 11-K-1

Figure 12. Location map for samples CP-92, 94 (New Waterford)

CAPE BRETON COUNTY

Sample Number
CP-95

TOPOGRAPHICAL SHEET: 11K/08

LOCATION: Exposure approximately 15 m from shore on the eastern side of Cranberry Point (Fig. 13).

UTM: 715100 E
5126680 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Mottled, reddish-grey clay containing carbonaceous material. The clay exhibits extensive iron carbonate stains, and has a minimum thickness of 30 cm.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

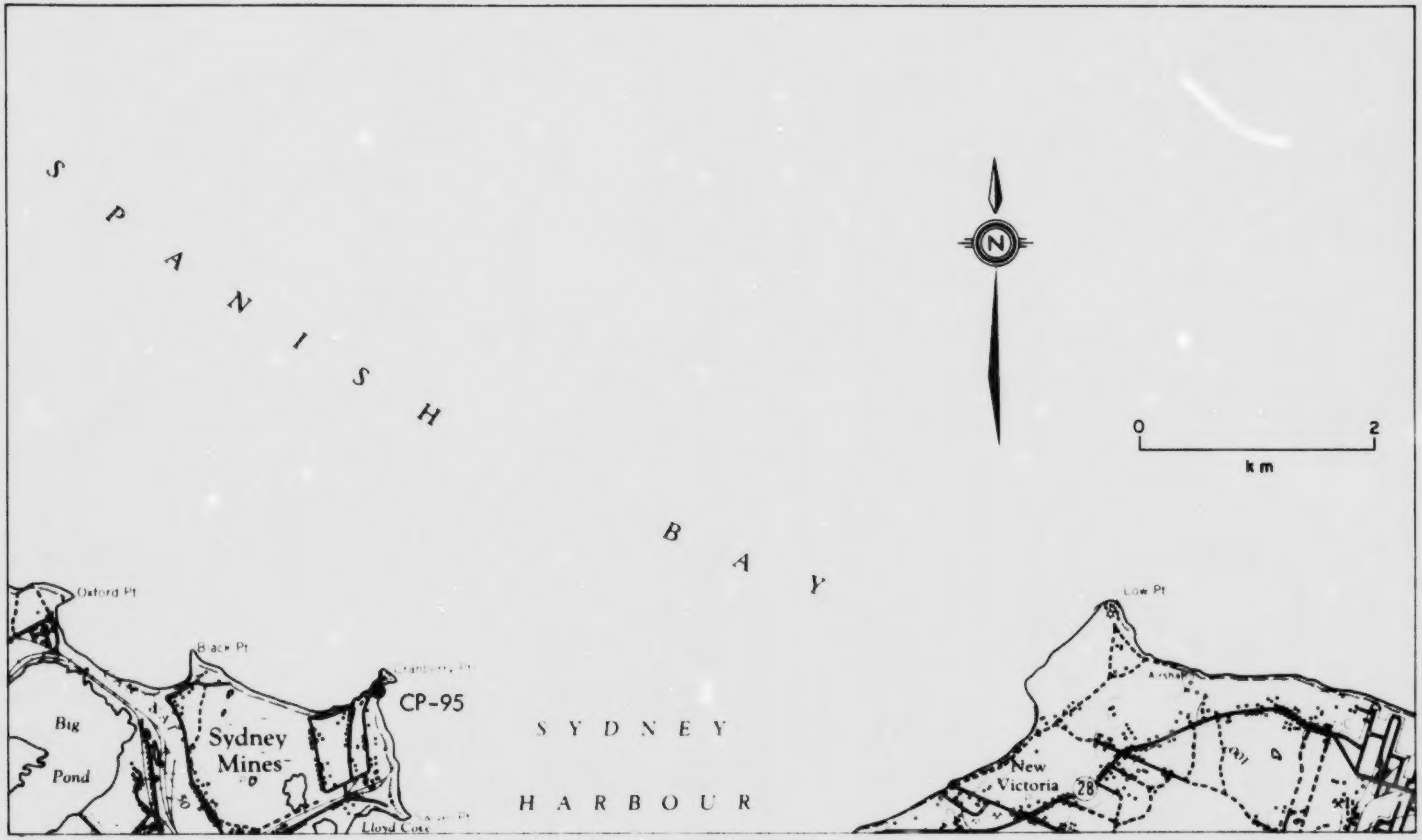
UNFIRED CHARACTERISTICS: Greyish-orange, noncalcareous clay. Very good workability. Very plastic. Water of plasticity 25.6%. Safe drying. Air shrinkage 6.7%. Modulus of rupture 341 p.s.i. Benzidine test negative.

P.C.E.: 4-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	4.85	6.01	Moderate reddish orange	Steel hard
04	7.08	1.05	Moderate reddish brown	Steel hard
02	8.60	0.01	Dark reddish brown	Steel hard

POTENTIAL USES: Earthenware, artware and structural products


SPANISH BAY
N
0
2
km
Oxford Pt
Black Pt
Cranberry Pt
CP-95
Big
Pond
Sydney
Mines
Lloyd Cove
SYDNEY
HARBOUR
Low Pt
New
Victoria
28

Ref. Map 11-K-8

Figure 13. Location map for sample CP-95 (Sydney Mines)

CAPE BRETON COUNTY

Sample Number
CP-97

TOPOGRAPHICAL SHEET: 11K/02

LOCATION: Big Beach, in the bed of a small stream flowing through the property of Mr. Daniel Murray, approximately 760 m southwest of Longbeach Point (Fig. 14).

UTM: 678480 E
5096950 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Brown clay containing extensive carbonaceous material.

ATTITUDE OF BEDDING: Horizontal

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

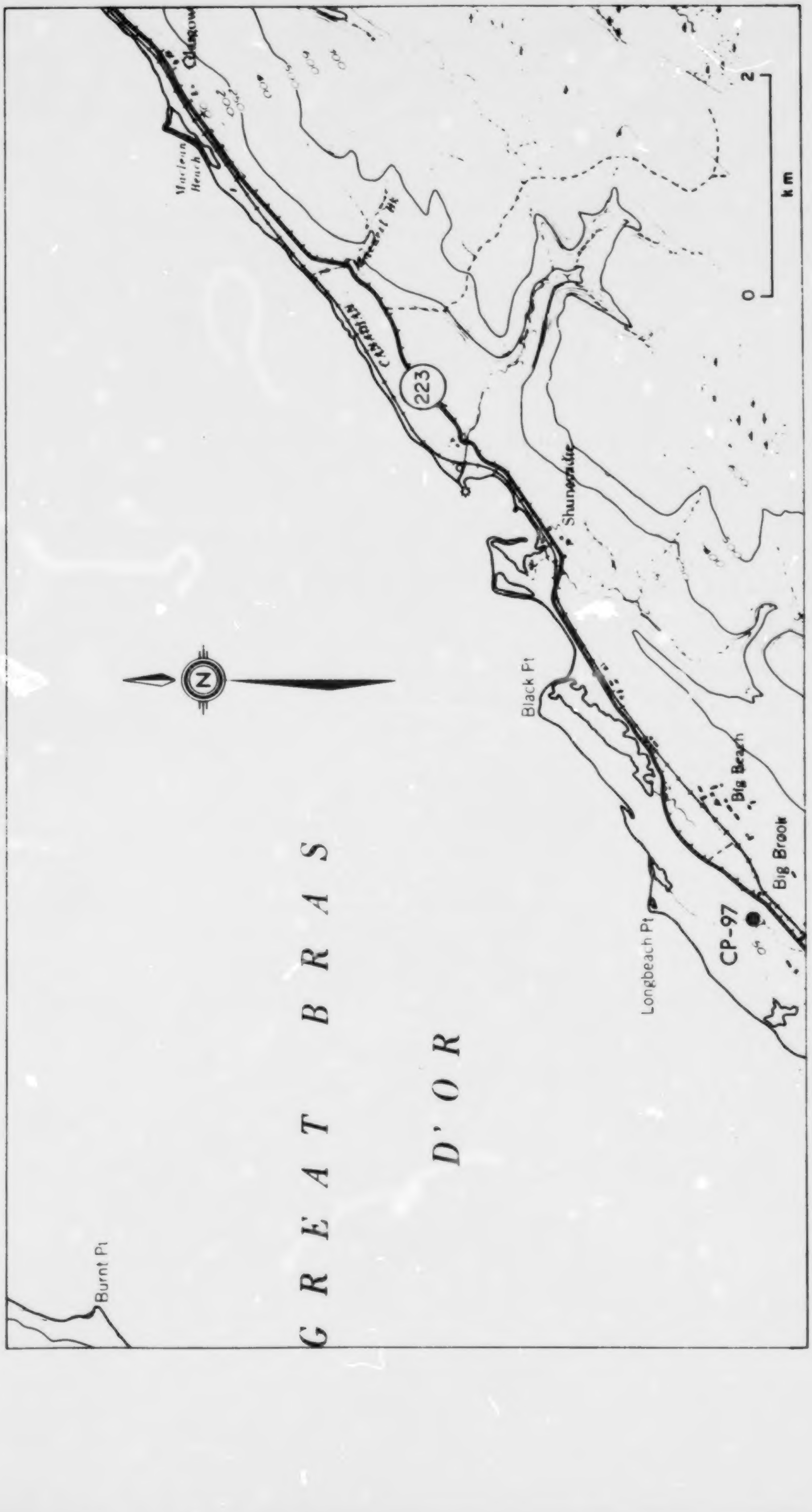
UNFIRED CHARACTERISTICS: Pale reddish-brown, noncalcareous, sandy clay. Poor workability. Poorly plastic. Water of plasticity 31.2%. Safe drying. Air shrinkage 5.1%. Benzidine test negative.

P.C.E.: 5-6

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	2.72	13.14	Pale reddish brown	Hard
1	4.93	13.31	Pale reddish brown	Hard
3	6.16	11.09	Moderate red	Hard

POTENTIAL USES: None


GREAT BRAS D'OR
Burnt Pt
N
Longbeach Pt
CP-97
Big Brook
Big Beach
Black Pt
Shunacadie
223
0
2
km

Ref. Map 11-K-2

Figure 14. Location map for sample CP-97 (Big Beach)

COLCHESTER COUNTY

Sample Number
CP-13

TOPOGRAPHICAL SHEET: 11E/06

LOCATION: A gravel pit on the southern side of the road going from Belmont to Onslow Mountain. The pit is approximately 1.6 km east of Belmont (Fig. 15).

UTM: 471410 E
5030140 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Reddish-brown clay

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

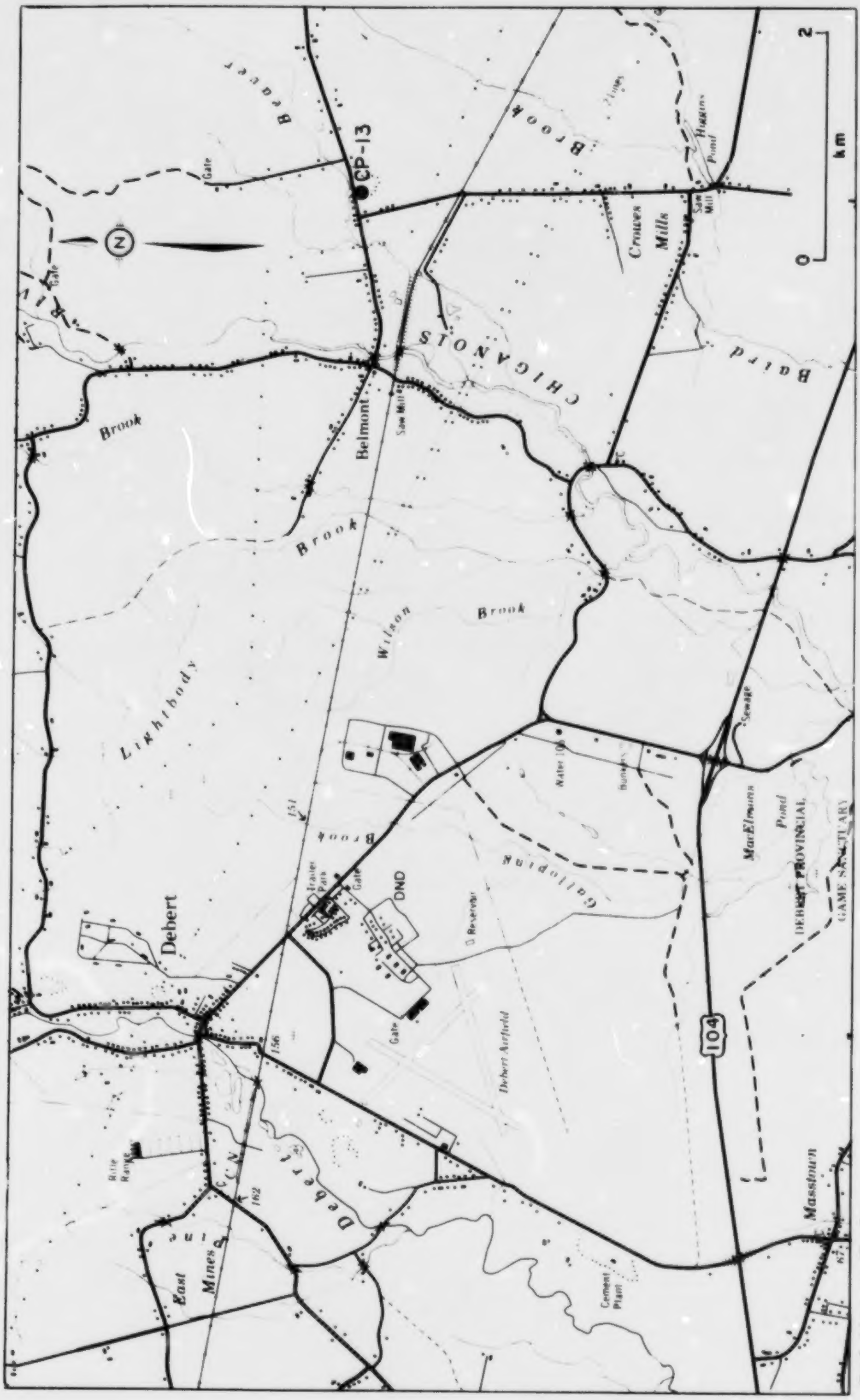
UNFIRED CHARACTERISTICS: Red, noncalcareous, soily clay. Fair workability. Fairly plastic. Water of plasticity 20.8%. Safe dryng. Air shrinkage 4.7%. Modulus of rupture 130 p.s.i. Benzidine test negative.

P.C.E.: 15-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	0.53	19.47	Moderate reddish orange	Soft
1	0.70	13.48	Moderate reddish orange	Soft
6	1.23	11.55	Moderate reddish brown	Hard

POTENTIAL USES: None


CP-13
N
2
0
km
Belmont
Debert
Chiganois
Lightbody Brook
Brook
Wilson Brook
Beaver Brook
Crowes Mills
Saw Mill
Higgins Pond
Baird
Brook
Gate
Trailer Park
DND
Debert Airfield
Reservoir
Water
Bunkers
Sewage
MacElmons Pond
DEBERT PROVINCIAL GAME SANCTUARY
104
Masstown
Debert
C.N.R.
East Mines
Rifle Range
Cement Plant
151
156
162

Ref. Map II-E-6

Figure 15. Location map for sample CP-13 (Debert)

COLCHESTER COUNTY

Sample Number
CP-17

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: Johnston Brook, approximately 9.6 km northeast of Stewiacke East. Clay is exposed 244 m north of the road, on the eastern bank of the Brook (Fig. 16).

UTM: 483490 E
5003380 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Mottled red-brown-grey clay which grades down into sand. It contains organic and carbonaceous material and shows iron carbonate stains.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

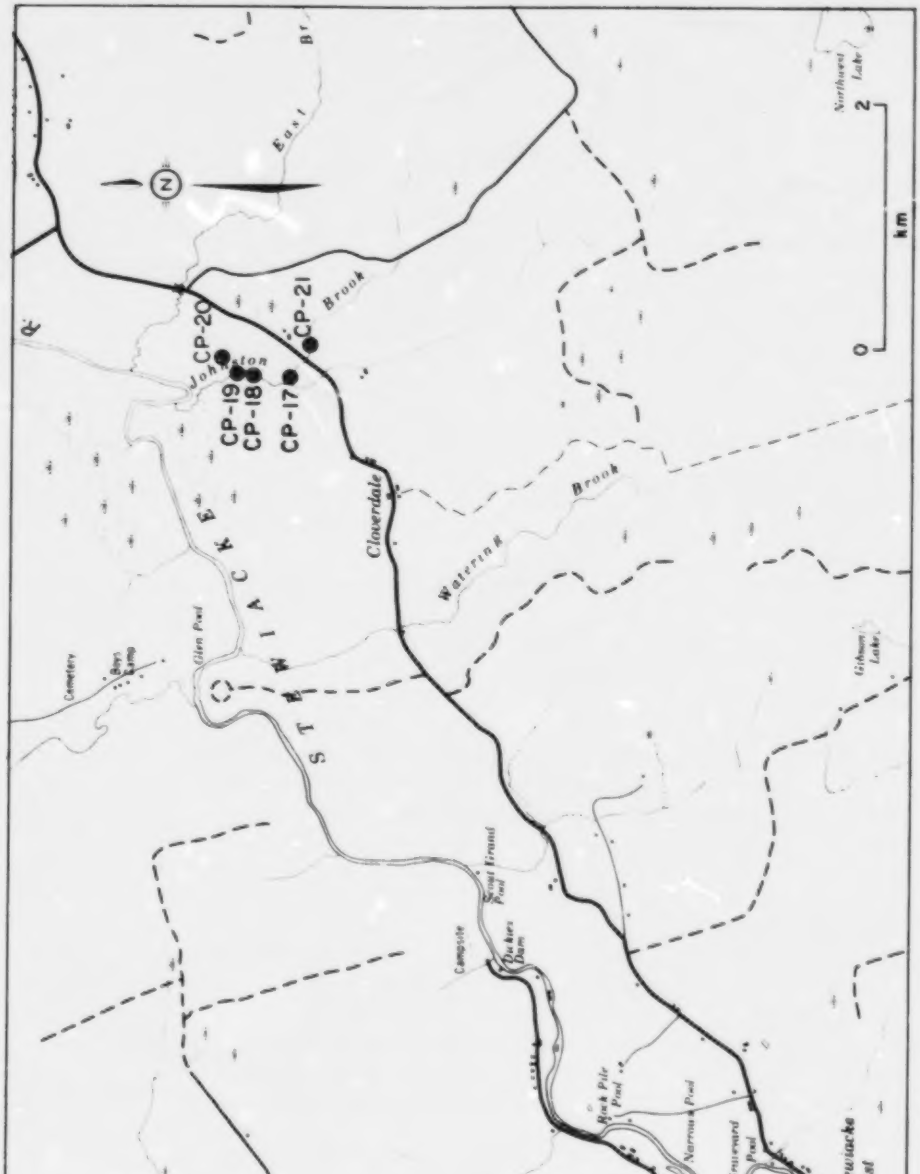
UNFIRED CHARACTERISTICS: Brown, noncalcareous, soily clay. Good workability. Plastic. Water of plasticity 23.0%. Air shrinkage 5.4%. Modulus of rupture 152 p.s.i. Benzidine test negative.

P.C.E.: 5

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	4.42	8.71	Moderate reddish brown	Hard
1	4.76	6.76	Moderate reddish brown	Hard to very hard
3	5.81	6.03	Moderate reddish brown	Very hard

POTENTIAL USES: None


CP-20
CP-21
CP-19
CP-18
CP-17
Johnston
Brook
East Br.
N
STEWIACKE
Cloverdale
Watering Brook
Glen Pool
Cemetery
Boys Camp
Scout Grand Pool
Campsite
Dukies Dam
Rock Pile Pool
Narrows Pool
Graveyard Pool
Stewiacke East
Gibson Lake
Northwest Lake
Pollys Bog
Alton
McKay Siding
CN
102
141
31
51
0
2
km

Ref. Map II-E-3

Figure 16. Location map for samples CP-17-21 (Stewiacke River)

COLCHESTER COUNTY

Sample Number
CP-18

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: Johnston Brook, approximately 9.6 km northeast of Stewiacke East. The clay is in the stream bed, 536 m north of the road from Stewiacke East to Middle Stewiacke (Fig. 16).

UTM: 483540 E
5003610 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Medium to dark brownish-grey clay containing grit. Visible in an area 91 cm by 61 cm. The thickness could not be determined.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Brownish-grey, noncalcareous clay. Good workability. Plastic. Water of plasticity 25.0%. Safe drying. Air shrinkage 5.8%. Modulus of rupture 176 p.s.i. Benzidine test negative.

P.C.E.: 6+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	5.15	9.42	Moderate reddish brown	Hard
1	5.66	6.83	Moderate reddish brown	Very hard
2	6.89	5.29	Moderate reddish brown	Steel hard

POTENTIAL USES: Face brick, roofing tile, floor tile and chimney tile.

COLCHESTER COUNTY

Sample Number
CP-19

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: Johnston Brook, approximately 9.6 km northeast of Stewiacke East. The exposure is on the eastern bank of the Brook, 564 m north of the road from Stewiacke East to Middle Stewiacke (Fig. 16).

UTM: 483570 E
5003680 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Mottled red-brown-grey clay, exposed in an area 91 cm by 30 cm and having a thickness of 30 cm.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Vertical 30 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Light brown, noncalcareous clay containing a few stones. Good workability. Very plastic. Water of plasticity 28.4%. Cracks with rapid drying at 85°C. Air shrinkage 6.7%. Modulus of rupture 285 p.s.i. Benzidine test negative.

P.C.E.: 15-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
05	3.95	9.01	Moderate reddish orange	Very hard
04	6.07	6.22	Moderate reddish orange	Steel hard
02	8.56	2.12	Moderate reddish brown	Steel hard

POTENTIAL USES: Earthenware, artware and most structural products.

COLCHESTER COUNTY

Sample Number
CP-20

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: Johnston Brook, approximately 9.6 km northeast of Stewiacke East. Clay is exposed in a marsh pasture about 518 m north of a farm on the eastern side of Johnston Brook (Fig. 16).

UTM: 483620 E
5003840 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Mottled grey-red-brown clay. The outcrop extends over a length of 76 m and width of 9 m.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Light greyish-brown, slightly calcareous clay. Good workability. Plastic. Good extrudability. Water of plasticity 34.0%. Safe drying. Air shrinkage 4.4%. Modulus of rupture 332 p.s.i. Benzidine test negative. Warped slightly in drying.

P.C.E.: 15-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
05	3.31	14.87	Pale yellowish orange	Hard
04	5.58	10.21	Light moderate reddish orange	Hard to very hard
02	8.87	5.21	Moderate reddish orange	Steel hard

POTENTIAL USES: None

COLCHESTER COUNTY

Sample Number
CP-21

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: Johnston Brook, approximately 9.6 km northeast of Stewiacke East. Exposure along the eastern bank of the Brook about 91 m south of the road to Middle Stewiacke from Stewiacke East (Fig. 16).

UTM: 483770 E
5003200 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Light reddish-brown clay containing organic material. The clay extends along the bank of Johnston Brook for 9 m and grades down into sand.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Light brown, noncalcareous clay. Good workability. Plastic. Water of plasticity 26.0%. Safe drying. Air shrinkage 5.9%. Modulus of rupture 239 p.s.i. Benzidine test negative.

P.C.E.: 7

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
05	3.02	10.83	Moderate reddish orange	Soft to hard
04	5.13	7.17	Light moderate reddish orange	Hard
02	7.97	3.25	Moderate reddish orange	Steel hard

POTENTIAL USES: Suitable for most structural clay products

COLCHESTER COUNTY

Sample Number
CP-22

TOPOGRAPHICAL SHEET: 11E/05

LOCATION: Along the shore of Cobequid Bay at Little Bass River (Fig. 17).

UTM: 436930 E
5027140 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Dark grey clay containing a considerable amount of organic material. The exposure is about 9 m long, 3 m wide and 38 cm thick, however it is rapidly eroding by wave action.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

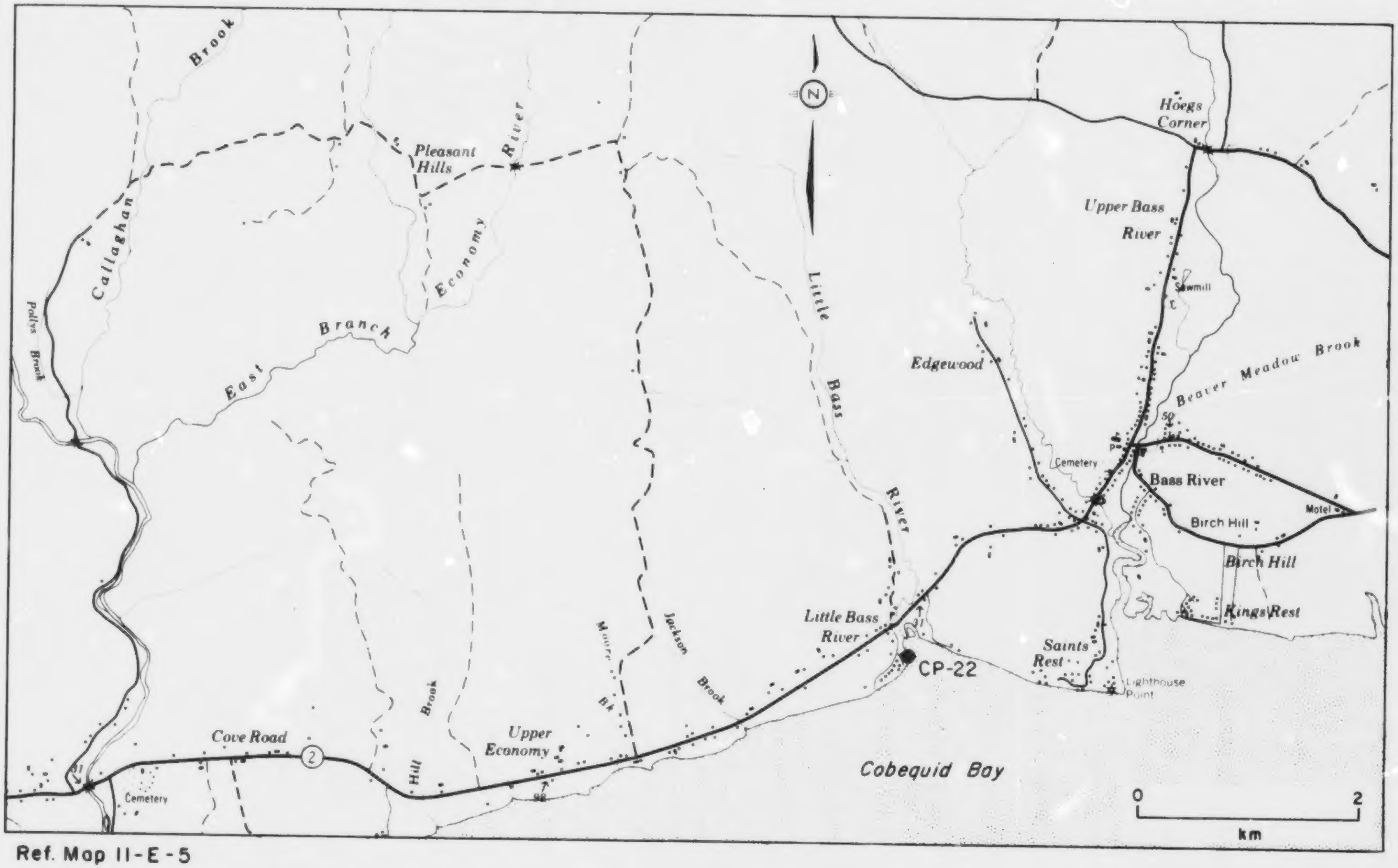
UNFIRED CHARACTERISTICS: Light brownish-grey, noncalcareous clay containing a few stones. Good workability. Plastic. Water of plasticity 30.0%. Safe drying. Air shrinkage 6.2%. Modulus of rupture 169 p.s.i. Benzidine test negative. After drying had a dark scum on top.

P.C.E.: 4-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
05	0.89	17.02	Light brown	Soft
04	1.77	12.60	Dark reddish brown	Hard
02	5.35	4.68	Dark reddish brown	Steel hard

POTENTIAL USES: Suitable for most structural products


Brook
Pleasant Hills
River
Hoegs Corner
Upper Bass River
Sawmill
Callaghan
Economy
Pollys Brook
East Branch
Little Bass River
Edgewood
Beaver Meadow Brook
50
Cemetery
Bass River
Motel
Birch Hill
Birch Hill
Kings Rest
Moore Bk
Jackson Brook
Little Bass River
CP-22
Saints Rest
Lighthouse Point
Hill Brook
Upper Economy
Cove Road
2
Cemetery
98
Cobequid Bay
0
2
km
N

Ref. Map 11-E-5

Figure 17. Location map for sample CP-22 (Little Bass River)

COLCHESTER COUNTY

Sample Number
CP-26

TOPOGRAPHICAL SHEET: 11E/11W

LOCATION: Cavanagh Brook. The road from East New Annan to Route 311 crosses the Brook approximately 1.9 km east of East New Annan. Exposure is along the eastern bank and in the stream bed about 380 m south of the bridge (Fig. 18).

UTM: 479840 E
5049860 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Reddish-brown clay containing numerous stones ranging in diameter from 2-10 cm. The clay has a thickness in excess of 46 cm and is exposed over a distance of 12 m.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

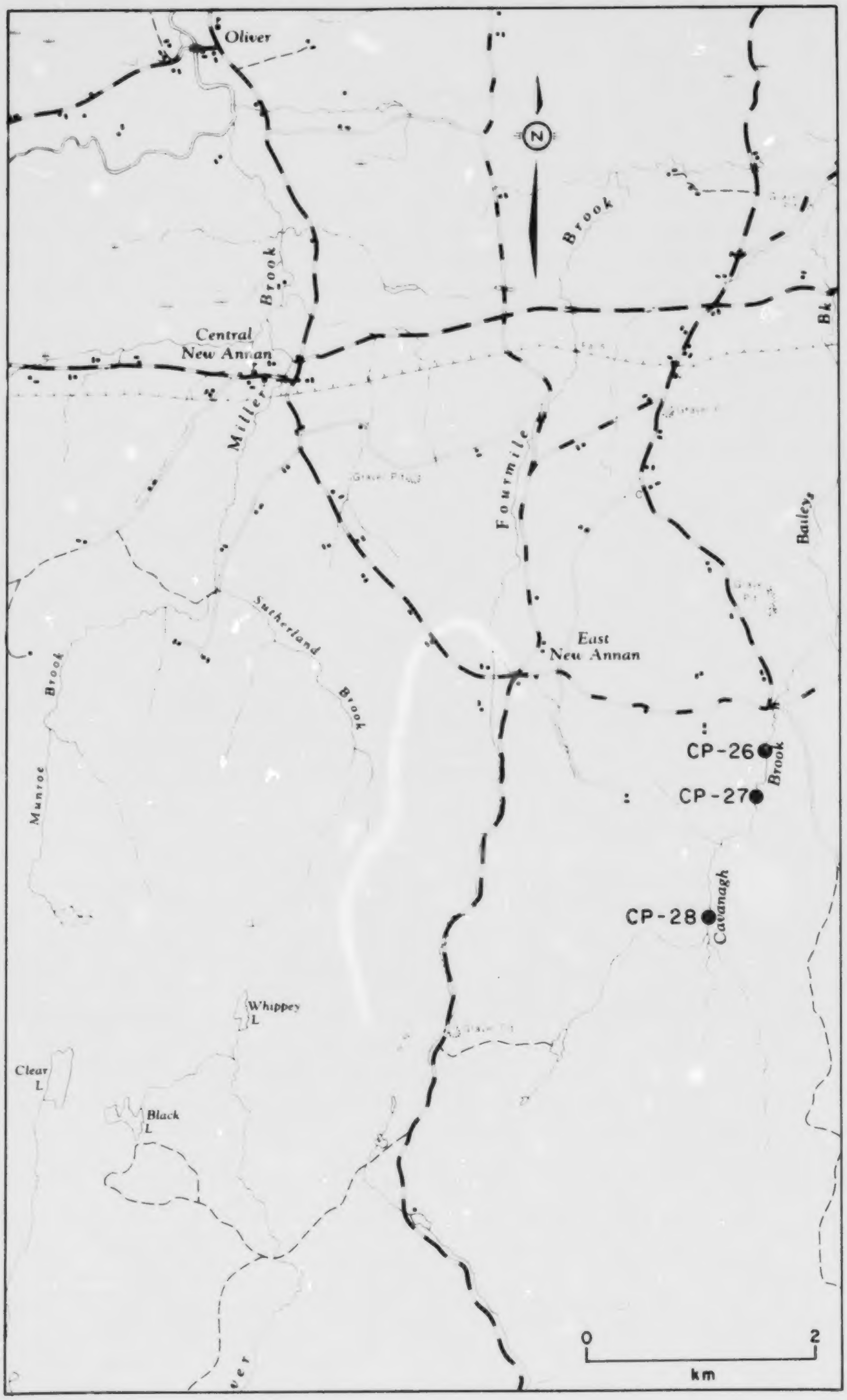
UNFIRED CHARACTERISTICS: Pale reddish-brown, calcareous clay containing many stones. Very good workability. Very plastic. Water of plasticity 15.6%. Safe drying. Air shrinkage 4.5%. Modulus of rupture 259 p.s.i. Benzidine test negative.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
05	0.18	9.98	Pale reddish brown	Hard
04	1.39	7.92	Moderate reddish brown	Very hard
02	4.01	3.07	Dark reddish brown	Steel hard

POTENTIAL USES: Earthenware, artware and most structural products.


Oliver
N
Brook
Brook
Central
New Annan
Miller
Bk
Fourmile
Baileys
Sutherland
Brook
East
New Annan
Brook
Munroe
Brook
CP-26
CP-27
Brook
CP-28
Cavanagh
Whippey
L
Clear
L
Black
L
0
2
km

Ref. Map 11-E-11-W

Figure 18. Location map for samples CP-26-28 (East New Annan)

COLCHESTER COUNTY

Sample Number
CP-27

TOPOGRAPHICAL SHEET: 11E/11W

LOCATION: The road from East New Annan to Route 311 crosses Cavanagh Brook approximately 1.9 km east of East New Annan. The clay is exposed in the Brook 884 m south of the bridge (Fig. 18).

UTM: 479740 E
5049310 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Reddish-brown clay containing some stones. Outcrop is sporadic for about 46 m in the stream bed.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Moderate reddish-brown, noncalcareous clay with stones. Very good workability. Very plastic. Water of plasticity 17.6%. Safe drying. Air shrinkage 5.4%. Modulus of rupture 243 p.s.i. Benzidine test negative.

P.C.E.: 7-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
05	1.42	8.48	Pale reddish brown	Hard
04	3.33	4.95	Moderate reddish brown	Very hard to steel hard
02	5.45	1.16	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Earthenware, artware and most structural products.

COLCHESTER COUNTY

Sample Number
CP-28

TOPOGRAPHICAL SHEET: 11E/11W

LOCATION: The road from East New Annan to Route 311 crosses Cavanagh Brook approximately 1.9 km east of East New Annan. The clay is exposed on the eastern bank of the Brook about 1.8 km south of the bridge (Fig. 18).

UTM: 479320 E
5048440 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Reddish-brown clay containing organic material and pebbles <2 cm in diameter. The thickness of the clay is in excess of 45 cm.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Pale reddish brown, calcareous clay containing numerous stones. Very good workability. Very plastic. Water of plasticity 17.6%. Safe drying. Air shrinkage 5.5%. Modulus of rupture 215 p.s.i. Benzidine test negative.

P.C.E.: 4-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
05	nil	10.23	Pale reddish brown	Hard
04	1.24	7.89	Pale reddish brown	Hard
02	5.13	2.35	Moderate reddish brown	Steel hard

POTENTIAL USES: Earthenware, artware and most structural products.

CUMBERLAND COUNTY

Sample Number
CP-29

TOPOGRAPHICAL SHEET: 21H/07

LOCATION: West Advocate, on the shore of Advocate Bay about 565 m northwest of Dewis Brook (Fig. 19).

UTM: 356350 E
5023460 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Medium grey clay, 10 cm thick overlain and underlain by light greenish-grey muddy clay containing grit and pebbles <1 cm in diameter. The clay extends along the shore for about 14 m.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Channel sample across the 10 cm bed of medium grey clay

TYPE OF MATERIAL: Clay

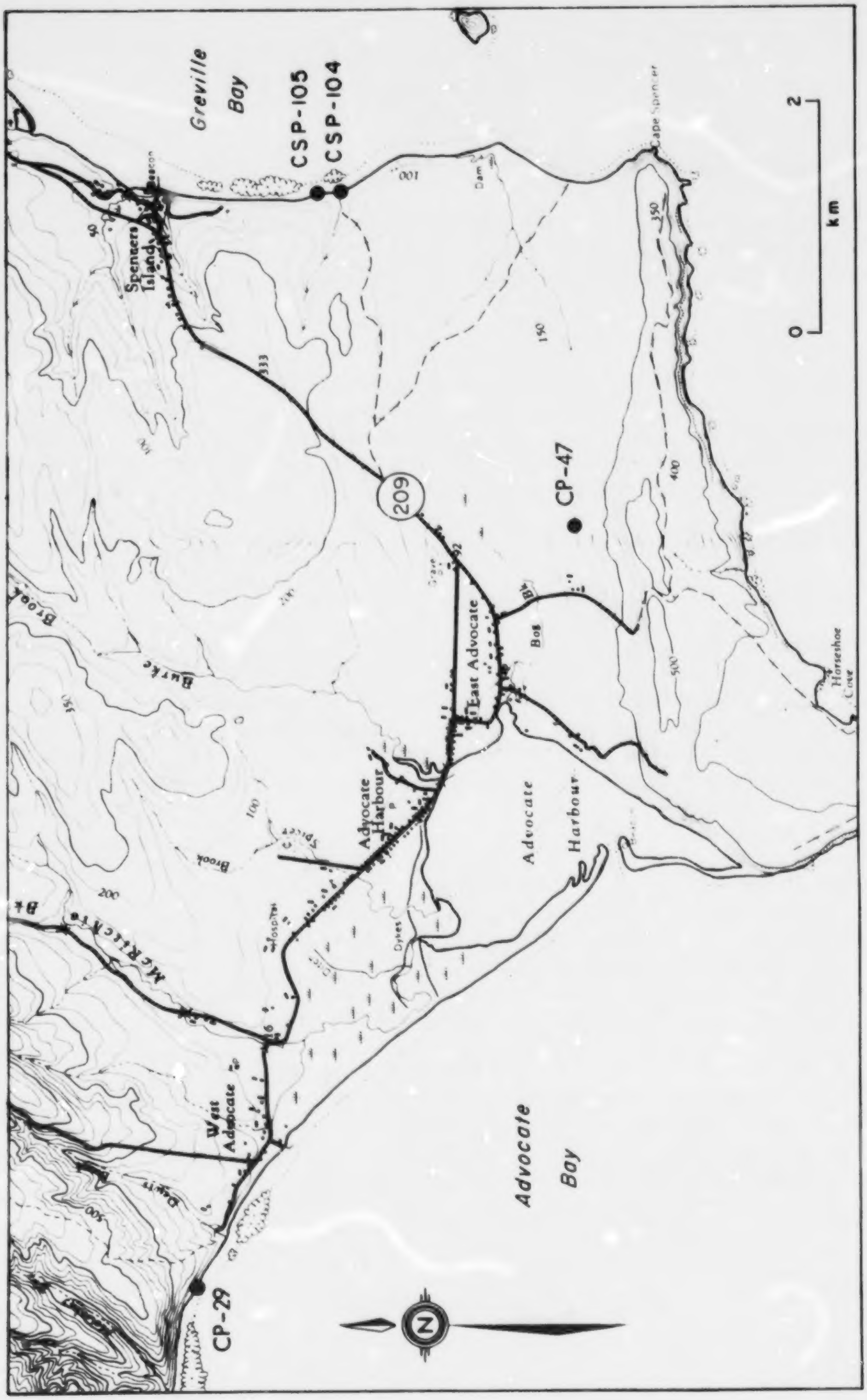
UNFIRED CHARACTERISTICS: Medium bluish-grey, calcareous clay containing numerous stones. Very good workability. Highly plastic. Poor extrudability. Water of plasticity 12.4%. Safe drying. Air shrinkage 2.2%. Modulus of rupture 178 p.s.i. Benzidine test faint positive.

P.C.E.: 6+ (some bloating at cone 05)

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
05	3.08	7.05	Pale reddish brown	Very hard to steel hard
04	4.12	2.51	Moderate reddish brown	Steel hard
02	5.57	1.23	Moderate reddish brown	Steel hard

POTENTIAL USES: Earthenware and artware


Greville Bay
CSP-105
CSP-104
Spencers Island
Cape Spencer
209
333
CP-47
East Advocate
Burke Brook
Advocate Harbour
Advocate Harbour
Spicer Brook
McKitchie Bk
West Advocate
Dykes
Horseshoe Cove
Advocate Bay
CP-29
N
0
2
km
150
200
350
400
500
100

Ref Map 21-H-7

Figure 19. Location map for samples CP-29,47; CSP-104, 105 (East Advocate)

CUMBERLAND COUNTY

Sample Number
CP-47

TOPOGRAPHICAL SHEET: 21H/07

LOCATION: Exposure on the southern bank of a small pond approximately 480 m east of the road going to Cape d'Or from East Advocate (Fig. 19).

UTM: 362930 E
5020000 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Brownish-red clay containing organic material. The extent and thickness of the clay could not be determined, however clay was once quarried here.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Pale reddish-brown, noncalcareous clay. Very good workability. Very plastic. Water of plasticity 26.0%. Safe drying. Air shrinkage 6.6% Modulus of rupture 243 p.s.i. Benzidine test negative.

P.C.E.: 4-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	4.28	8.52	Moderate reddish brown	Hard
04	5.52	7.12	Moderate reddish brown	Hard
02	9.66	2.09	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Artware, common brick, face brick, hollow tile, conduit and sewer pipe.

CUMBERLAND COUNTY

Sample Number
CSP-8

TOPOGRAPHICAL SHEET: 21H/16E

LOCATION: South of the highway from Salem to Port Howe, in a quarry 2.4 km east of Salem (Fig. 20).

UTM: 415880 E
5068810 N

GEOLOGICAL UNIT: Pictou Group, Pennsylvanian age

DESCRIPTION: Brownish coloured shale

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

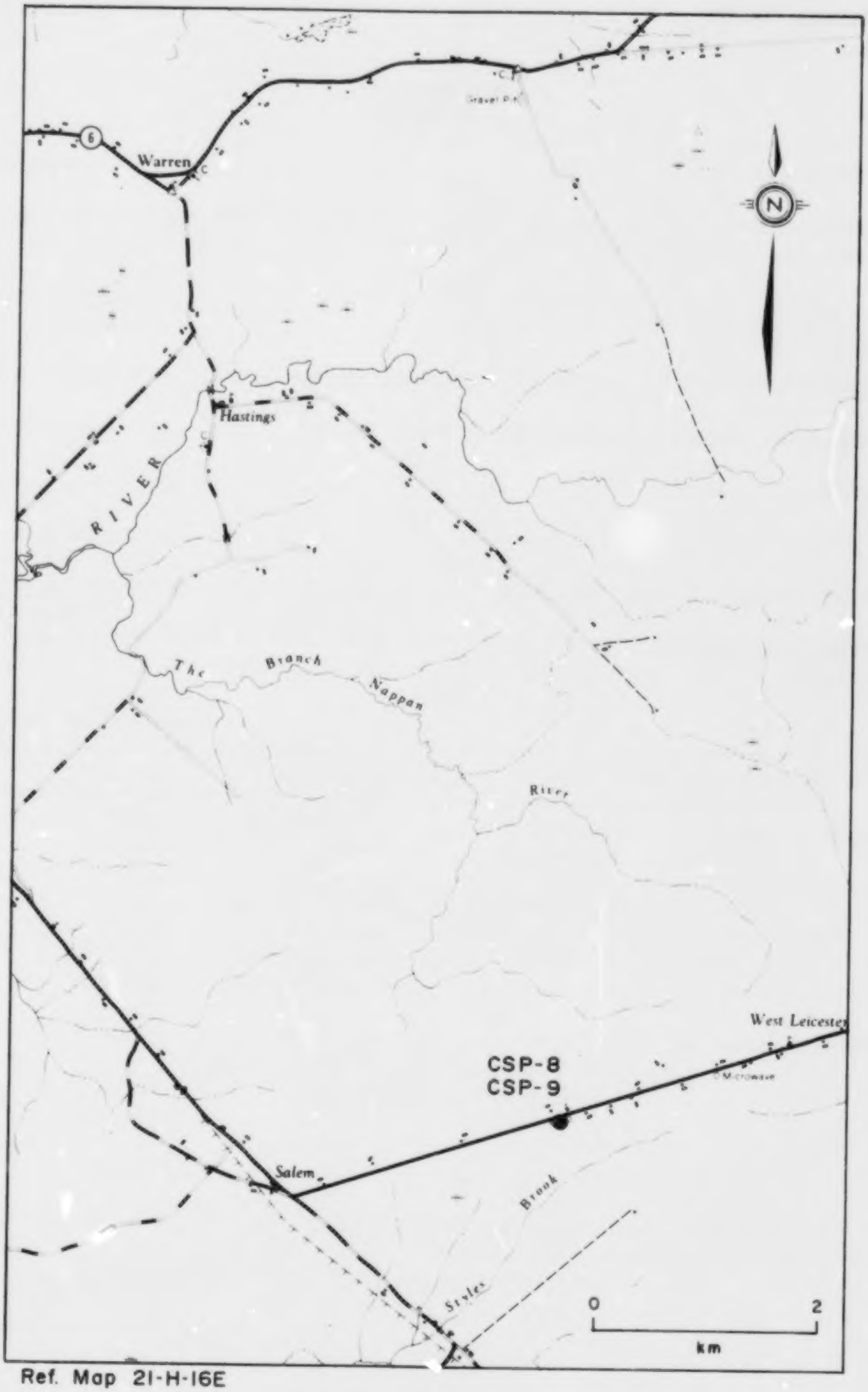
UNFIRED CHARACTERISTICS: Fair workability. Fair plasticity. Water of plasticity 20.0%. Safe drying. Air shrinkage 6.3%.

P.C.E.: 3 (started to bend at cone 1)

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.86	7.45	Light reddish brown	Very hard
04	4.61	2.45	Moderate reddish brown	Steel hard

POTENTIAL USES: Common and face brick.


Gravel Pit
6
Warren
N
Hastings
RIVER
The Branch Nappan River
West Leiceste
Microwave
CSP-8
CSP-9
Salem
Styles Brook
0
2
km

Ref. Map 21-H-16E

Figure 20. Location map for samples CSP-8, 9 (Salem)

CUMBERLAND COUNTY

Sample Number
CSP-9

TOPOGRAPHICAL SHEET: 21H/16E

LOCATION: In a quarry 2.4 km east of Salem on the southern side of the highway from Salem to Port Howe (Fig. 20).

UTM: 415880 E
5068810 N

GEOLOGICAL UNIT: Pictou Group, Pennsylvanian age

DESCRIPTION: Reddish-brown shale and siltstone

ATTITUDE OF BEDDING: 075°/46° SE

SAMPLE INTERVAL: 3 m channel sample

TYPE OF MATERIAL: Shale and siltstone

UNFIRED CHARACTERISTICS: Highly calcareous. Fair plasticity. Water of plasticity 21.2%. Safe drying. Air shrinkage 3.8%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.38	17.09	Reddish brown	Fairly hard
04	1.05	15.60	Pale red	Hard
02	0.00	10.37	Reddish brown	Very hard

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-10

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: About 400 m northwest of Chignecto, in the surface dump of an old coal mine (Fig. 21).

UTM: 405220 E
5065690 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Blue-grey clay which occurs between coal beds

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Moderate plasticity. Water of plasticity 30.0%. Safe drying. Air shrinkage 8.0%.

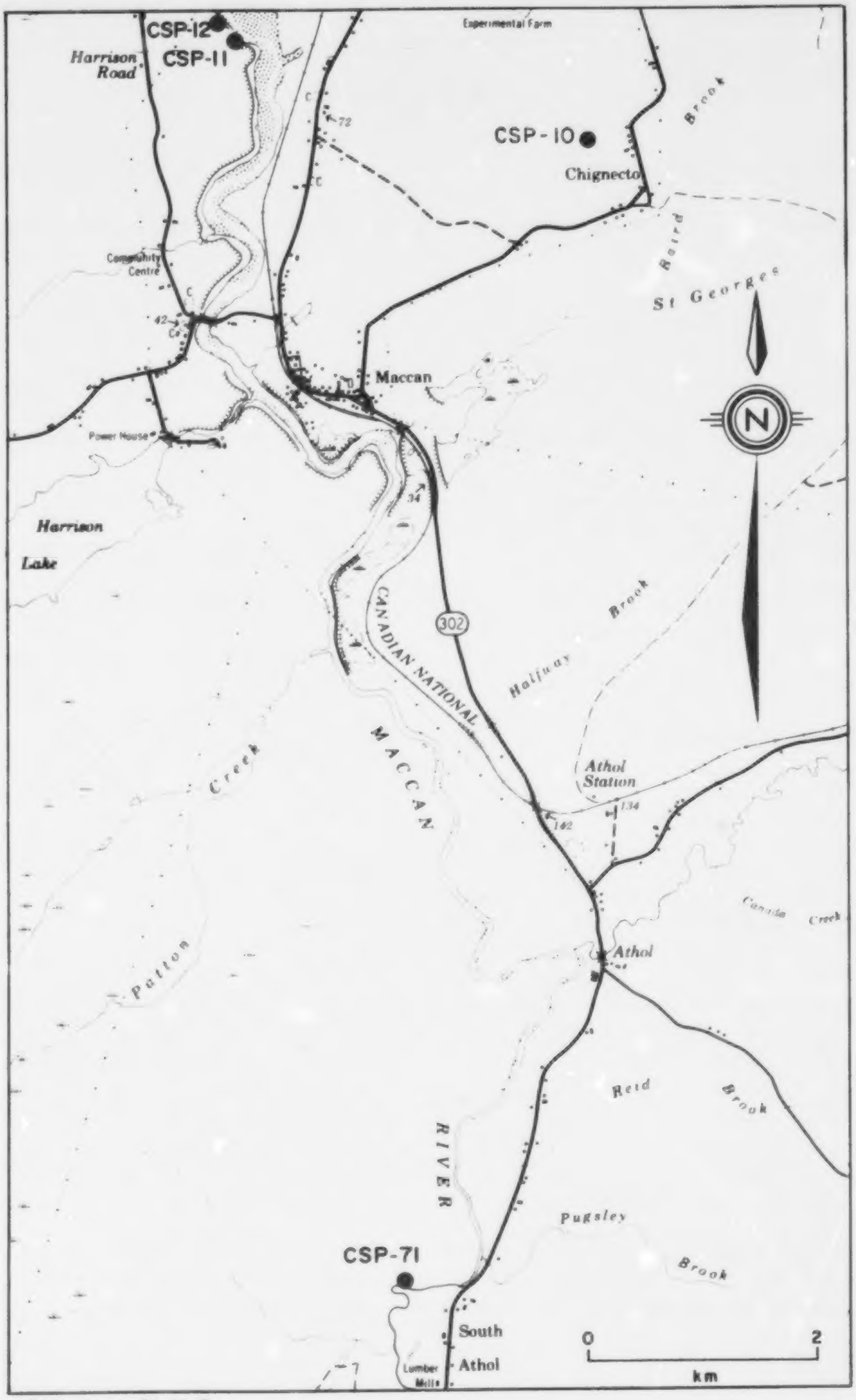
P.C.E.: 15

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1825	4.01	13.4	Light salmon	Very hard
1885	3.18	9.0	Light salmon	Very hard
1935	8.97	5.0	Light salmon	Steel hard
1980	10.63	0.79	Buff	Steel hard
2025	11.02	0.22	Buff	Steel hard
2065	10.99	0.82	Brown	Steel hard
2105	9.74	1.12	Brown	Steel hard
2140	8.31	1.29	Brown	Steel hard
2175	3.92	2.28	Greenish brown	Steel hard
2200	+0.32	4.21	Greenish brown	Steel hard
2225	+0.23	5.98	Greenish brown	Steel hard
2240	+2.89	6.75	Greenish brown	Steel hard

REMARKS: Sample contained pyrite which gave dark specks after firing. From 2200°F the sample bloated. Differential thermal analysis indicates 15% kaolinite in sample. Firing range too narrow.

POTENTIAL USES: None


CSP-12
CSP-11
Harrison Road
Experimental Farm
CSP-10
Chignecto
Brook
Baird
St Georges
Community Centre
Maccan
Power House
Harrison Lake
N
302
CANADIAN NATIONAL
Halfway Brook
MACCAN
Creek
Athol Station
Canada Creek
Athol
Patton
Reid Brook
RIVER
Pugsley Brook
CSP-71
South Athol
Lumber Mills
0
2
km

Ref. Map 21-H-9

Figure 21. Location map for samples CSP-10-12, 71 (Maccan River)

CUMBERLAND COUNTY

Sample Number
CSP-11

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Exposure of clay along the Maccan River, east of Harrison Road (Fig. 21).

UTM: 402230 E
5066600 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Reddish-brown clay, about 12 m thick, in contact with laminated shale and fine grained sandstone. Exposed for a length of 490 m.

ATTITUDE OF BEDDING: 130°/25° SW

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Noncalcareous. Good workability. Good plasticity. Water of plasticity 30.9%. Safe drying. Air shrinkage 8.3%

P.C.E.: 3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	0.36	13.64	Pinkish brown	Fairly hard
04	0.73	10.85	Pinkish brown	Hard
02	10.51	0.76	Pinkish brown	Steel hard

REMARKS: A lot of scumming on firing. Warped on firing.

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-12

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Exposure of siltstone along the Maccan River, east of Harrison Road (Fig. 21).

UTM: 402090 E
5066750 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Hard, reddish-brown siltstone

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Siltsone

UNFIRED CHARACTERISTICS: Highly calcareous. Fair workability. Poorly plastic. Water of plasticity 20.8%. Safe drying. Air shrinkage 4.3%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.38	16.23	Reddish brown	Fairly hard
04	0.35	15.19	Pale red	Hard
02	1.05	10.56	Pale reddish brown	Hard

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-13

TOPOGRAPHICAL SHEET: 21H/16W

LOCATION: Exposure of clay on the western side of the Maccan River, near the Village of Harrison Road (Fig. 22).

UTM: 402000 E
5066900 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Brownish-red clay

SAMPLE INTERVAL: Grab sample

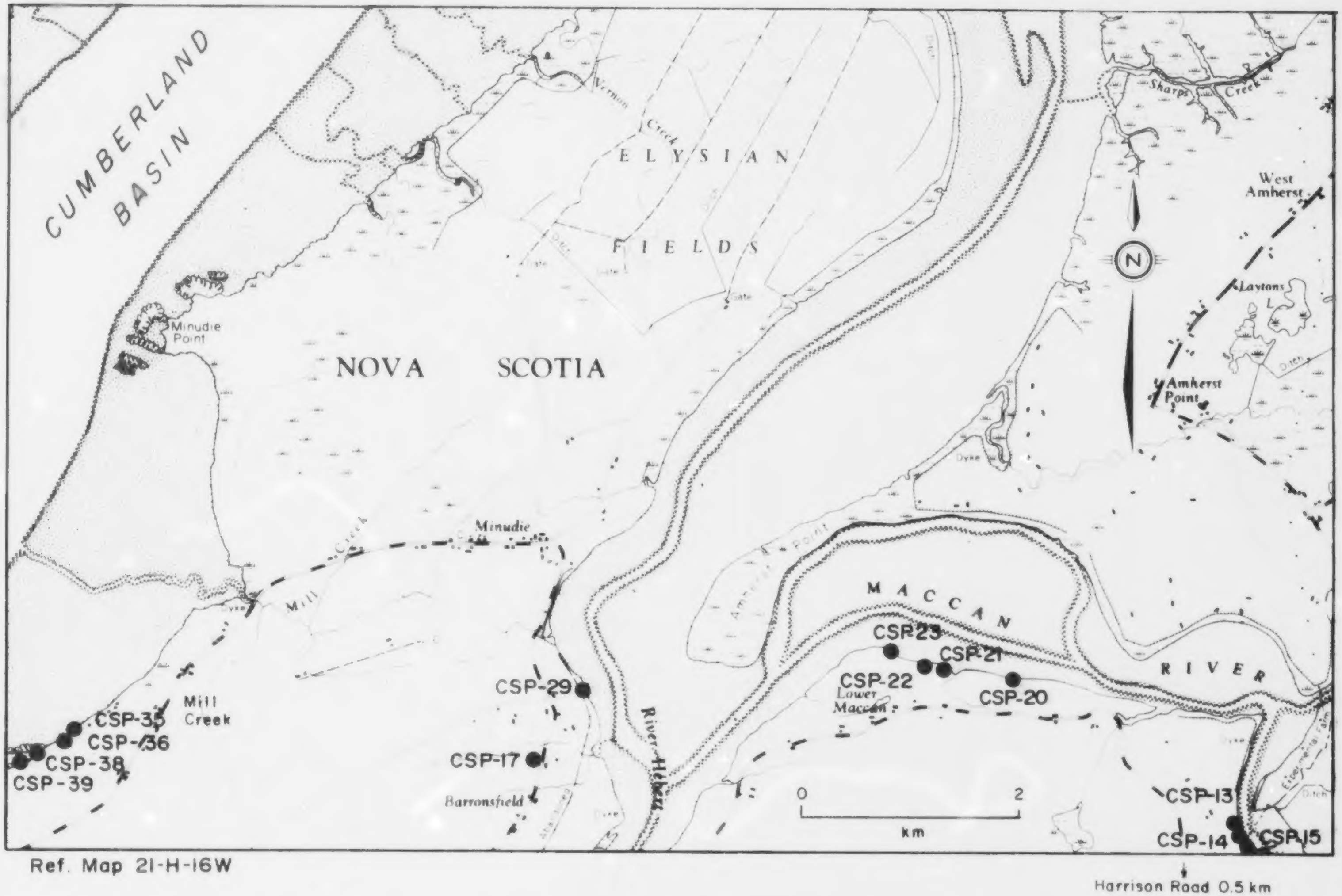
TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Highly calcareous. Good workability. Good plasticity. Water of plasticity 20.0%. Cracks with rapid drying. Air shrinkage 7.5%

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	0.73	10.74	Light brown	Hard
04	1.79	5.10	Light reddish brown	Very hard

POTENTIAL USES: Not enough sample to complete firing tests


CUMBERLAND BASIN
Minudie Point
NOVA SCOTIA
ELYSIAN FIELDS
Vernon Creek
Gate
Ditch
Sharps Creek
West Amherst
Laytons L.
Amherst Point
Dyke
Amherst Point
MACCAN RIVER
Minudie
Mill Creek
Mill Creek
CSP-35
CSP-36
CSP-38
CSP-39
CSP-29
CSP-17
Barronsfield
River Hebert
CSP-23
CSP-21
CSP-22
Lower Maccan
CSP-20
0
2
km
CSP-13
CSP-14
CSP-15
Harrison Road 0.5 km

Ref. Map 21-H-16W

Figure 22. Location map for samples CSP-13-15, 17, 20-23, 29, 35, 36, 38, 39 (Cumberland Basin)

CUMBERLAND COUNTY

Sample Number
CSP-14

TOPOGRAPHICAL SHEET: 21H/16W

LOCATION: On the western bank of the Maccan River, east of the Village of Harrison Road (Fig. 22).

UTM: 401960 E
5066980 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Reddish-brown, hard siltstone

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Siltstone

UNFIRED CHARACTERISTICS: Good workability. Good plasticity. Water of plasticity 21.0%. Cracks with rapid drying. Safe drying at 85°C. Air shrinkage 6.2%

P.C.E.: 3 (started to bend at cone 1)

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	4.27	5.06	Reddish brown	Steel hard
04	6.79	0.62	Reddish brown	Steel hard
02	6.36	0.31	Dark reddish brown	Steel hard

REMARKS: Some scumming on firing

POTENTIAL USES: Suitable for low quality clay products such as brick.

CUMBERLAND COUNTY

Sample Number
CSP-15

TOPOGRAPHICAL SHEET: 21H/16W

LOCATION: Exposure of red siltstone and shale east of the Maccan River and north of the Village of Harrison Road (Fig. 22).

UTM: 401960 E
5067090 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Red slate and siltstone

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Slate and siltstone

UNFIRED CHARACTERISTICS: Slightly calcareous. Good workability and plasticity. Water of plasticity 21.8%. Safe drying. Air shrinkage 6.4%

P.C.E.: 3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	0.36	11.11	Pale reddish brown	Hard
04	1.07	10.43	Moderate reddish brown	Very hard
02	3.92	3.61	Moderate reddish brown	Steel hard

POTENTIAL USES: Common brick

CUMBERLAND COUNTY

Sample Number
CSP-17

TOPOGRAPHICAL SHEET: 21H/16W

LOCATION: Exposure along the Minudie Highway at Barronsfield (Fig. 22).

UTM: 395560 E
5067750 N

GEOLOGICAL UNIT: Canso Group, Upper Mississippian age

DESCRIPTION: Dark reddish shale exposed along the roadside.

SAMPLE INTERVAL: Grab sample along exposure

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Poor workability. Poorly plastic. Water of plasticity 25.0%. Safe drying. Air shrinkage 3.9%.

P.C.E.: 9 (started to bend at cone 7)

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1840	+0.28	21.2	Light brown	Soft
1910	0.23	20.8	Light brown	Soft
1950	0.58	19.4	Reddish brown	Hard
2005	1.04	17.71	Reddish brown	Hard
2045	2.46	16.45	Reddish brown	Hard
2080	2.38	14.37	Reddish brown	Hard
2115	4.30	12.48	Dark greyish brown	Very hard
2145	4.90	10.1	Dark greyish brown	Very hard
2165	5.80	7.92	Dark greyish brown	Very hard
2185	4.60	8.37	Dark greyish brown	Very hard
2200	6.32	6.45	Dark greyish brown	Very hard
2215	6.12	6.50	Dark greyish brown	Very hard

POTENTIAL USES: Possibly common brick, face brick, tile and decorative brick.

CUMBERLAND COUNTY

Sample Number
CSP-18

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: On the bank of River Hebert, at a point of land slightly northeast of the race track in River Hebert (Fig. 23).

UTM: 393310 E
5062080 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Grey clay containing plant remains.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 38.6%. Cracks with rapid drying. Air shrinkage 9.9%

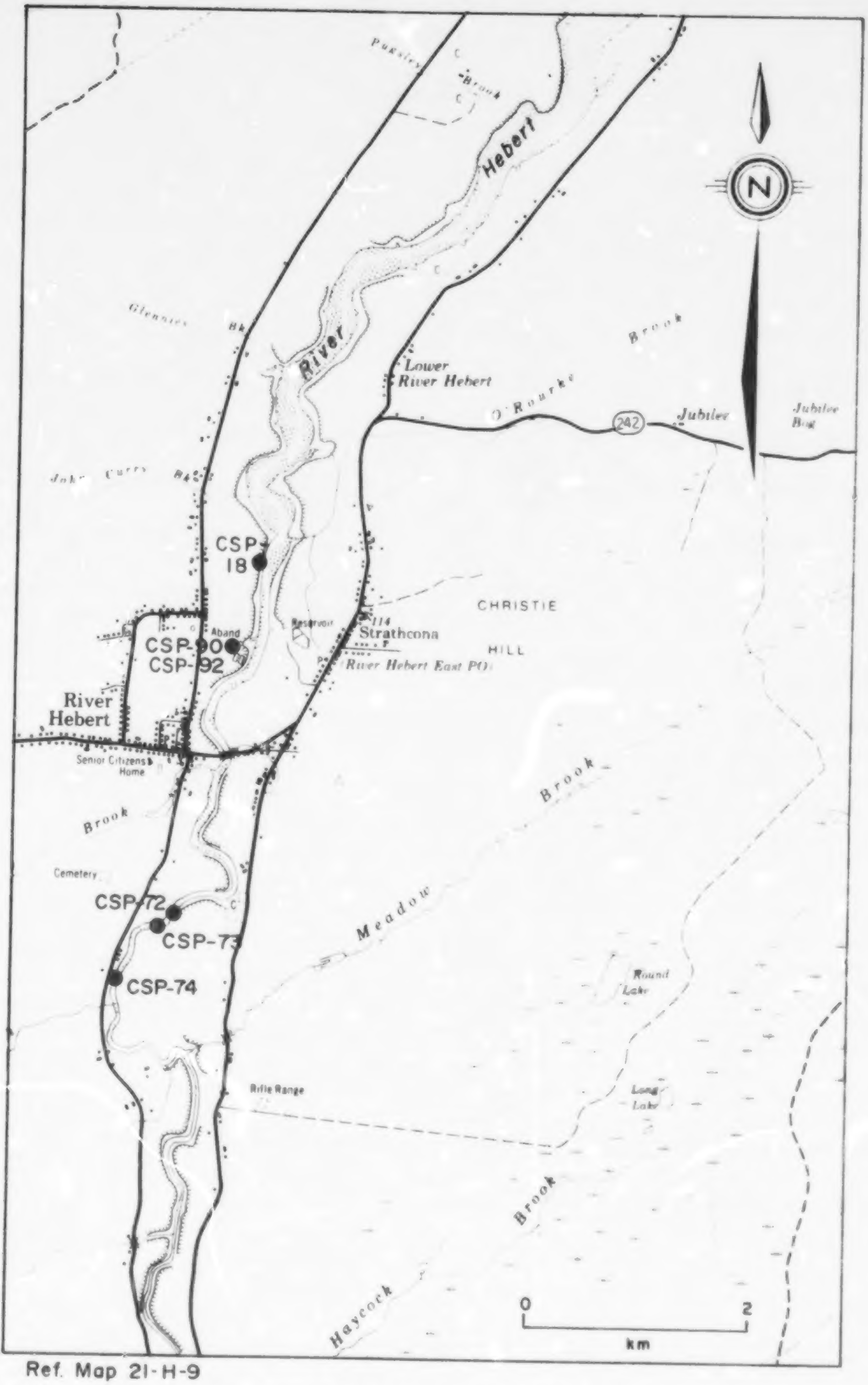
P.C.E.: 3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	+1.12	14.68	Light brown	Hard
04	1.49	9.43	Reddish brown	Hard
02	6.62	3.70	Reddish brown	Steel hard

REMARKS: Warped on firing. High air shrinkage. Short firing range. Some scumming on firing.

POTENTIAL USES: None


N
Pugsley Brook
River Hebert
Glennies Bk
Brook
Lower River Hebert
O'Rourke
242
Jubilee
Jubilee Bog
John Curry Bk
CSP-18
CHRISTIE HILL
Aband
Reservoir
114
Strathcona
River Hebert East PO
CSP-90
CSP-92
River Hebert
Senior Citizens Home
Brook
Meadow Brook
Cemetery
CSP-72
CSP-73
CSP-74
Round Lake
Rifle Range
Long Lake
Haycock Brook
0
2
km

Ref. Map 21-H-9

Figure 23. Location map for samples CSP-18, 72-74, 90, 92 (River Hebert)

CUMBERLAND COUNTY

Sample Number
CSP-20

TOPOGRAPHICAL SHEET: 21H/16W

LOCATION: Along the southern shore, at the mouth of the Maccan River, at the Village of Lower Maccan (Fig. 22).

UTM: 399920 E
5068430 N

GEOLOGICAL UNIT: Recent clay

DESCRIPTION: Reddish-brown clay

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Highly calcareous clay. Good workability and plasticity. Water of plasticity 23.0%. Safe drying. Air shrinkage 6%.

P.C.E.: 3

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1785	0.52	18.05	Reddish brown	Soft
1825	0.55	18.30	Reddish brown	Soft
1865	0.63	18.55	Reddish brown	Soft
1905	0.75	18.33	Reddish brown	Fairly hard
1935	0.83	19.60	Reddish brown	Fairly hard
1965	1.24	18.00	Reddish brown	Fairly hard
1980	1.06	18.10	Reddish brown	Fairly hard
2010	1.39	16.55	Reddish brown	Fairly hard
2025	1.51	17.90	Reddish brown	Fairly hard

REMARKS: White specks which absorb moisture throughout sample after firing.

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-21

TOPOGRAPHICAL SHEET: 21H/16W

LOCATION: On the southern shore of the Maccan River, 1.6 km northeast of the Village of Lower Maccan (Fig. 22).

UTM: 399250 E
5068570 N

GEOLOGICAL UNIT: Recent clay

DESCRIPTION: Grey clay

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Highly calcareous. Fair workability. Fair plasticity. Water of plasticity 20.9%. Safe drying at 85°C. Sample warped on air drying. Air shrinkage 4.4%

P.C.E.: 3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	+1.04	13.55	Pinkish cream	Hard
04	0.35	8.86	Pinkish cream	Hard
02	1.57	8.70	Pale red	Very hard

REMARKS: Scumming on firing.

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-22

TOPOGRAPHICAL SHEET: 21H/16W

LOCATION: On the southern shore of the Maccan River, 137 m west of sample CSP-21 (Fig. 22).

UTM: 399150 E
5068600 N

GEOLOGICAL UNIT: Recent clay

DESCRIPTION: Light grey, sandy clay containing organic material.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Fair workability and plasticity. Water of plasticity 20.0%. Safe drying. Air shrinkage 5.5%

P.C.E.: 4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	+0.70	13.95	Pinkish brown	Hard
04	0.71	12.42	Reddish brown	Hard

REMARKS: Scumming on firing

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-23

TOPOGRAPHICAL SHEET: 21H/16W

LOCATION: On the southern shore of the Maccan River, 275 m west of sample CSP-22, in the area of Lower Maccan (Fig. 22).

UTM: 398790 E
5068700 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Reddish to brownish shale interbedded with limestone and mudstone.

SAMPLE INTERVAL: 6 m channel sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Slightly calcareous. Fair workability and plasticity. Water of plasticity 21.0% Cracks with rapid drying. Air shrinkage 5.4%.

P.C.E.: 3

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1835	2.76	10.10	Reddish brown	Very hard
1875	3.53	8.33	Reddish brown	Very hard
1910	4.70	6.98	Reddish brown	Very hard
1945	5.85	5.29	Reddish brown	Steel hard
1975	7.23	2.94	Reddish brown	Steel hard
2030	7.75	0.49	Dark red	Steel hard
2045	8.48	0.43	Dark red	Steel hard
2060	8.52	0.34	Dark red	Steel hard

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-29

TOPOGRAPHICAL SHEET: 21H/16W

LOCATION: Along the bank of River Hebert, north of Barronsfield, and approximately 915 m south of Minudie wharf (Fig. 22).

UTM: 396010 E
5068370 N

GEOLOGICAL UNIT: Canso Group, Upper Mississippian age

DESCRIPTION: Arenaceous shale interbedded with thin beds of sandstone.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Moderately calcareous. Good workability. Good plasticity. Water of plasticity 19.0%. Safe drying. Air shrinkage 4.8%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1810	0.34	14.30	Light reddish brown	Fairly hard
1860	0.36	14.26	Light reddish brown	Fairly hard
1900	0.13	13.86	Reddish brown	Hard
1940	0.19	12.68	Reddish brown	Hard
1975	2.02	11.79	Reddish brown	Hard
2005	2.47	9.14	Reddish brown	Very hard
2035	4.01	6.59	Reddish brown	Very hard
2055	4.59	4.30	Dark reddish brown	Very hard
2075	6.05	3.06	Dark reddish brown	Steel hard
2090	6.19	2.09	Dark reddish brown	Steel hard
2100	7.30	2.03	Dark reddish brown	Steel hard

REMARKS: White specks throughout sample after firing.

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-35

TOPOGRAPHICAL SHEET: 21H/16W

LOCATION: Along Cumberland Basin, between Mill Creek and Lower Cove (Fig. 22).

UTM: 391430 E
5068140 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Horizon consists of shale and sandstone

ATTITUDE OF BEDDING: 265°/35° SE

SAMPLE INTERVAL: Chip sample across 3.7 m

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Moderately calcareous. Fair workability. Fairly plastic. Water of plasticity 21.0%. Cracks with rapid drying at 85°C. Air shrinkage 4.6%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage	Absorption %	Colour	Hardness
1820	0.55	16.32	Light brown	Fairly hard
1870	0.68	16.42	Light brown	Fairly hard
1910	0.49	16.26	Light brown	Fairly hard
1950	0.14	15.70	Light brown	Hard
1990	0.40	14.76	Light brown	Hard
2020	1.61	12.32	Medium brown	Hard
2050	3.20	9.20	Medium brown	Very hard
2070	4.91	6.17	Dark brown	Very hard
2085	6.25	3.80	Dark brown	Steel hard

REMARKS: Sample has short firing range

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-36

TOPOGRAPHICAL SHEET: 21H/16W

LOCATION: Along Cumberland Basin between Mill Creek and Lower Cove (Fig. 22).

UTM: 391320 E
5068010 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Reddish-brown shale

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Moderately calcareous. Fair workability. Water of plasticity 20.4%. Cracks with rapid drying at 85°C. Air shrinkage 4.5%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1820	0.63	17.20	Orange brown	Fairly hard
1865	0.55	17.52	Orange brown	Hard
1910	0.37	17.17	Light brown	Hard
1955	0.06	16.30	Light brown	Hard
1985	0.42	15.20	Light brown	Hard
2015	1.98	12.38	Medium brown	Very hard
2040	3.56	9.54	Medium brown	Very hard
2065	5.13	5.34	Medium brown	Very hard
2000	6.48	2.19	Dark brown	Steel hard
2095	7.48	1.53	Dark brown	Steel hard

REMARKS: Sample has short firing range

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-38

TOPOGRAPHICAL SHEET: 21H/16W

LOCATION: Between Mill Creek and Lower Cove, along the Cumberland Basin (Fig. 22).

UTM: 391040 E
5067860 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Reddish-brown siltstone

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Siltstone

UNFIRED CHARACTERISTICS: Highly calcareous. Fair workability. Fairly plastic. Water of plasticity 20.0%. Cracks with rapid drying. Air shrinkage 4.5%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage	Absorption %	Colour	Hardness
1820	0.55	17.69	Orange brown	Fairly hard
1870	0.54	17.50	Light brown	Fairly hard
1915	0.25	16.70	Light brown	Fairly hard
1950	0.18	16.09	Light brown	Fairly hard
1990	0.51	15.05	Light brown	Hard
2020	1.80	12.50	Light brown	Hard
2045	4.03	7.92	Medium brown	Very hard
2065	6.18	4.11	Medium brown	Very hard
2080	7.98	1.27	Dark brown	Steel hard

REMARKS: Sample has short firing range

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-39

TOPOGRAPHICAL SHEET: 21H/16W

LOCATION: Along the Cumberland Basin, 91 m west of sample CSP-38 (Fig. 22).

UTM: 390910 E
5067780 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Reddish-brown siltstone or shale.

ATTITUDE OF BEDDING: Flat lying

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Siltstone and shale

UNFIRED CHARACTERISTICS: Slightly calcareous. Good workability. Good plasticity. Water of plasticity 2[illegible].0%. Cracks with rapid drying. Air shrinkage 5.4%.

P.C.E.: 2 (started to bend at cone 1)

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1780	2.67	11.62	Salmon	Hard
1830	3.54	9.23	Salmon	Very hard
1875	4.84	7.95	Orange brown	Steel hard
1910	5.98	6.07	Orange brown	Steel hard
1945	6.98	4.36	Reddish brown	Steel hard
1972	8.12	3.68	Reddish brown	Steel hard
2000	8.63	1.44	Reddish brown	Steel hard
2025	9.15	0.31	Reddish brown	Steel hard
2045	8.66	0.57	Reddish brown	Steel hard
2065	8.08	0.73	Reddish brown	Steel hard

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-43

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Exposure at Boss Cove, along the Cumberland Basin (Fig. 24).

UTM: 388470 E
5066530 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Greyish to greenish shale, bed 7.5 m thick

ATTITUDE OF BEDDING: 262°/34° SE

SAMPLE INTERVAL: Chip sample across 7.5 m

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Slightly calcareous. Fair workability. Water of plasticity 20.1%. Safe drying. Air shrinkage 5.4%.

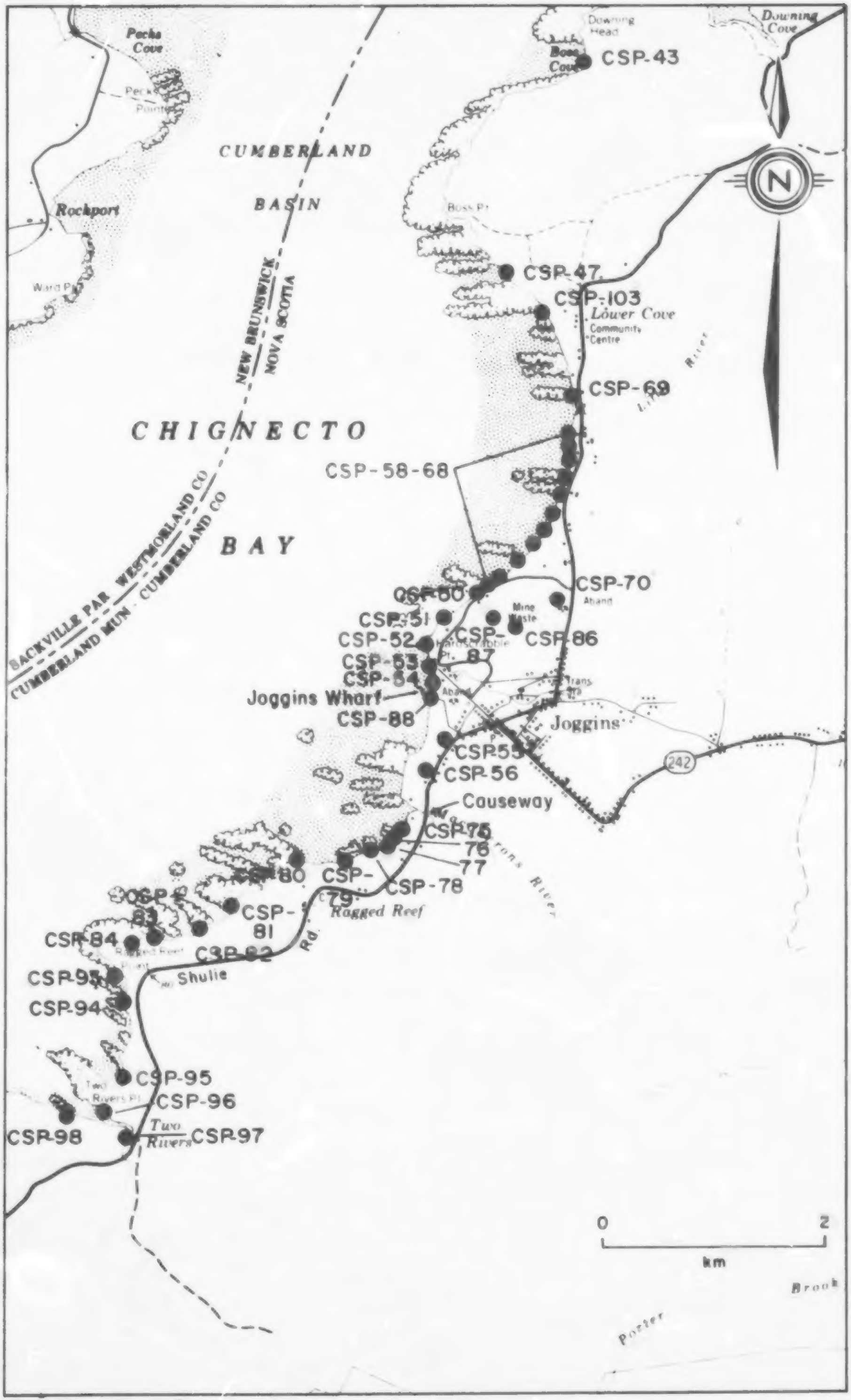
P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.05	11.18	Reddish orange	Hard
04	2.30	8.60	Reddish brown	Very hard
02	4.95	4.23	Reddish brown	Steel hard

REMARKS: Some scumming

POTENTIAL USES: Common brick


Pecks Cove
Pecks Point
Rockport
Ward Pt
CUMBERLAND BASIN
CHIGNECTO BAY
NEW BRUNSWICK
NOVA SCOTIA
SACKVILLE PAR WESTMORLAND CO
CUMBERLAND MUN CUMBERLAND CO
Downing Head
Downing Cove
Boss Cove
CSP-43
N
Boss Pt
CSP-47
CSP-103
Lower Cove
Community Centre
Lower River
CSP-69
CSP-58-68
CSP-50
CSP-70
Aband
CSP-51
Mine Waste
CSP-86
CSP-52
CSP-87
CSP-53
CSP-54
Joggins Wharf
CSP-88
Joggins
242
CSP-55
CSP-56
Causeway
CSP-75
76
77
CSP-78
CSP-79
Ragged Reef
CSP-80
CSP-81
CSP-82
CSP-83
CSP-84
Ragged Reef Point
Shulie
Rd
CSP-93
CSP-94
CSP-95
CSP-96
Two Rivers Pt
Two Rivers
CSP-97
CSP-98
0
2
km
Porter Brook

Ref. Map 21-H-9

Figure 24. Location map for samples CSP-43, 47, 50-56, 58-70, 75-84, 86-88, 93-98, 103 (Joggins)

CUMBERLAND COUNTY

Sample Number
CSP-47

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: At Lower Cove, approximately 800 m northwest of grindstone quarry (Fig. 24).

UTM: 387730 E
5064680 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Dark red shale interbedded with much narrower beds of siltstone. The exposure is 38 m thick.

ATTITUDE OF BEDDING: 272°/30° SW

SAMPLE INTERVAL: Chip sample across 15 m

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Highly calcareous. Poor workability. Poorly plastic. Water of plasticity 20.0%. Cracks with rapid drying. Air shrinkage 4.8%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1780	0.77	15.80	Orange brown	Fairly hard
1830	0.84	15.61	Orange brown	Fairly hard
1875	0.44	15.66	Orange brown	Fairly hard
1920	0.17	15.30	Light brown	Fairly hard
1955	0.18	14.45	Light brown	Fairly hard
1990	1.09	12.35	Light brown	Hard
2025	2.70	9.66	Light brown	Hard
2050	3.94	5.66	Medium brown	Very hard
2075	5.10	2.57	Dark brown	Steel hard
2090	4.84	1.82	Dark brown	Steel hard

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-50

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the shore of Cumberland Basin, north of the wharf at Joggins (Fig. 24).

UTM: 387410 E
5061800 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Light grey shale, 6 m in thickness.

ATTITUDE OF BEDDING: 265°/23° SE

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Very good workability and plasticity. Water of plasticity 24.4%. Safe drying. Air shrinkage 4.65%.

P.C.E.: 5

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1880	9.58	6.97	Light orange brown	Steel hard
1915	10.97	4.02	Light reddish brown	Steel hard
1955	11.15	2.08	Light reddish brown	Steel hard
1980	10.23	1.32	Light reddish brown	Steel hard
2010	10.19	0.85	Medium reddish brown	Steel hard
2035	9.68	1.03	Medium reddish brown	Steel hard
2060	9.17	0.71	Medium reddish brown	Steel hard
2080	10.82	0.75	Medium reddish brown	Steel hard

POTENTIAL USES: Possibly artware

CUMBERLAND COUNTY

Sample Number
CSP-51

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: North of the wharf at Joggins, along the coast of Cumberland Basin (Fig. 24).

UTM: 387100 E
5061590 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Grey clay and shale, approximately 3.7 m thick, underlain and overlain by coal seams.

ATTITUDE OF BEDDING: 267°/19° SE

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay and shale

UNFIRED CHARACTERISTICS: Good plasticity and workability. Water of plasticity 30.0%. Cracks with rapid drying. Air shrinkage 6.0%.

P.C.E.: 4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1740	1.83	14.50	Light orange brown	Very hard
1795	4.64	12.40	Light orange brown	Very hard
1845	6.76	7.36	Light orange brown	Very hard
1890	8.20	4.59	Light orange brown	Steel hard
1925	9.66	4.64	Light reddish brown	Steel hard
1960	10.96	3.13	Light reddish brown	Steel hard
1985	11.04	2.45	Light reddish brown	Steel hard
2010	10.62	1.74	Medium reddish brown	Steel hard
2035	11.20	1.50	Medium reddish brown	Steel hard
2055	11.09	1.23	Medium reddish brown	Steel hard
2075	11.63	0.85	Medium reddish brown	Steel hard

POTENTIAL USES: None, high fired shrinkage

CUMBERLAND COUNTY

Sample Number
CSP-52

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the shore of Cumberland Basin, north of the wharf at Joggins (Fig. 24).

UTM: 386960 E
5061320 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Greyish and greenish shale and siltstone with narrow beds of sandstone.

ATTITUDE OF BEDDING: 267°/20° SE

SAMPLE INTERVAL: Grab sample from 4.6 m section

TYPE OF MATERIAL: Shale and siltstone

UNFIRED CHARACTERISTICS: Slightly calcareous, hard, sandy, light grey shale. Good workability. Fair plasticity. Water of plasticity 20.9%. Cracks with rapid drying. Air shrinkage 4.4%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	0.27	14.38	Reddish brown	Hard
04	0.52	12.81	Pale brown	Hard
02	2.07	9.04	Reddish brown	Hard

REMARKS: Some scumming on firing

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-53

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the coast of Chignecto Bay, north of the wharf at Joggins (Fig. 24).

UTM: 387000 E
5061120 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Exposure of shale, siltsone and minor sandstone. Bed is 6 m thick.

SAMPLE INTERVAL: Chip sample across 7.6 m

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Calcareous, hard, sandy, light grey shale. Good workability and plasticity. Water of plasticity 22.7%. Safe drying. Air shrinkage 5.5%

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	0.32	13.37	Reddish brown	Hard
04	1.25	11.31	Pale reddish brown	Hard
02	3.53	7.74	Reddish brown	Very hard

REMARKS: Scumming on firing.

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-54

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the coast of Chignecto Bay, north of the wharf at Joggins (Fig. 24).

UTM: 387010 E
5060980 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Brownish-red, friable shale, 6 m thick.

SAMPLE INTERVAL: Chip sample across 7.6 m

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Calcareous, hard, sandy, browish-grey shale. Good workability and plasticity. Water of plasticity 20.4%. Cracks with rapid drying. Air shrinkage 4.1%.

P.C.E.: 3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	0.00	16.46	Pale reddish brown	Hard
04	0.53	14.80	Pale red	Hard
02	2.93	10.06	Brown	Very hard

REMARKS: Some scumming on firing.

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-55

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Point of land along Cumberland Basin between Joggins wharf and the Causeway, along Shulie Road (Fig. 24).

UTM: 387150 E
5060460 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Light brown shale and siltstone.

ATTITUDE OF BEDDING: 270°/17° S

SAMPLE INTERVAL: Chip sample across 6 m

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Very slightly calcareous, hard, sandy, light brown shale. Good workability and plasticity. Water of plasticity 21.6%. Safe drying. Air shrinkage 5.1%

P.C.E.: 4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.86	10.94	Reddish orange	Very hard
04	4.21	6.01	Reddish brown	Very hard
02	7.01	2.40	Reddish brown	Steel hard

POTENTIAL USES: Common brick

CUMBERLAND COUNTY

Sample Number
CSP-56

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Between Joggins wharf and the causeway, along Shulie Road (Fig. 24).

UTM: 387030 E
5060240 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Light greenish-brown shale and siltstone

SAMPLE INTERVAL: Chip sample across 9 m of shale

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Highly calcareous, hard and silty. Fair workability and plasticity. Water of plasticity 19.5%. Cracks with rapid drying. Air shrinkage 4.3%.

P.C.E.: 4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	0.35	12.01	Moderate reddish orange	Hard
04	1.31	9.89	Pale reddish brown	Hard
02	3.47	7.60	Moderate reddish brown	Hard

REMARKS: Some scumming on firing

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-58

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: At the southern part of Lower Cove, north of Joggins (Fig. 24).

UTM: 388290 E
5063200 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Greyish-brown shale

ATTITUDE OF BEDDING: 240°/24° SW

SAMPLE INTERVAL: 9 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Moderately calcareous. Good workability and plasticity. Water of plasticity 23.6%. Cracks with rapid drying at 85°C. Air shrinkage 5.9%.

P.C.E.: 4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	4.24	7.73	Moderate reddish orange	Steel hard
04	6.47	2.97	Moderate reddish orange	Steel hard
02	7.80	1.67	Moderate reddish orange	Steel hard

REMARKS: Scumming on firing

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-59

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: At the southern part of Lower Cove, north of Joggins (Fig. 24).

UTM: 388290 E
5063100 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Medium grey shale occurring along a cliff at Lower Cove.

ATTITUDE OF BEDDING: 254°/24° SW

SAMPLE INTERVAL: 9 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Slightly calcareous. Good workability and plasticity. Water of plasticity 23.8%. Cracks with rapid drying. Air shrinkage 5.4%

P.C.E.: 3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.20	8.71	Reddish brown	Steel hard
04	6.53	4.52	Reddish brown	Steel hard
02	8.54	1.63	Dark reddish brown	Steel hard

REMARKS: Scumming on firing

POTENTIAL USES: None

Sample Number
CSP-60

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: North of Joggins, at the southern part of Lower Cove (Fig. 24).

UTM: 388290 E
5062970 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Very light brown shale interbedded with siltstone and some sandstone.

ATTITUDE OF BEDDING: 254°/20° SW

SAMPLE INTERVAL: 12 m section, chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Highly calcareous. Good workability and plasticity. Water of plasticity 22.8%. Safe drying. Air shrinkage 4.8%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1840	0.87	18.23	Light orange brown	Hard
1890	1.04	17.72	Light orange brown	Hard
1930	1.14	17.29	Reddish brown	Hard
1970	1.23	16.99	Reddish brown	Hard
2000	1.72	16.76	Reddish brown	Hard
2020	2.57	15.01	Reddish brown	Very hard
2055	3.63	11.16	Reddish brown	Very hard
2075	6.07	6.87	Medium reddish brown	Steel hard
2095	8.05	4.43	Medium reddish brown	Steel hard

REMARKS: Short firing range. Grey and yellow specks throughout after firing.

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-61

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Exposure along the shore at Lower Cove, north of Joggins (Fig. 24).

UTM: 388240 E
5062820 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Light grey shale

SAMPLE INTERVAL: Grab sample from 3 m section

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 25.6%. Cracks with rapid drying. Air shrinkage 5.1%.

P.C.E.: 4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1780	4.24	9.68	Orange brown	Very hard
1830	5.50	7.91	Orange brown	Steel hard
1875	4.47	5.49	Medium brown	Steel hard
1915	7.51	3.61	Medium brown	Steel hard
1950	9.14	1.78	Medium brown	Steel hard
1980	8.09	0.95	Medium brown	Steel hard
2005	8.65	0.87	Medium brown	Steel hard
2035	7.98	0.74	Medium brown	Steel hard
2055	5.89	1.34	Medium reddish brown	Steel hard

POTENTIAL USES: Possibly suitable for drain tile, whiteware and stoneware.

CUMBERLAND COUNTY

Sample Number
CSP-62

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along a cliff at Lower Cove, north of Joggins (Fig. 24).

UTM: 388170 E
5062680 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Pale rose-grey shale

SAMPLE INTERVAL: 12 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Slightly calcareous. Good workability. Good plasticity. Water of plasticity 22.6%. Cracks with rapid drying. Air shrinkage 5.1%.

P.C.E.: 3

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1820	4.07	8.35	Orange brown	Steel hard
1865	5.33	5.91	Light reddish brown	Steel hard
1905	6.43	4.66	Light reddish brown	Steel hard
1940	7.24	3.20	Light reddish brown	Steel hard
1975	7.83	1.79	Light reddish brown	Steel hard
2000	8.16	0.79	Medium reddish brown	Steel hard
2030	7.93	1.15	Medium reddish brown	Steel hard
2055	7.66	0.72	Reddish brown	Steel hard
2075	7.20	0.77	Reddish brown	Steel hard

REMARKS: 100°F firing range

POTENTIAL USES: Possible use as common brick, sewer pipe and stoneware.

CUMBERLAND COUNTY

Sample Number
CSP-63

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the cliff at Lower Cove north of Joggins (Fig. 24).

UTM: 388110 E
5062510 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Light greyish-brown shale and siltstone

SAMPLE INTERVAL: Grab sample from 7.6 m section

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Highly calcareous. Plasticity and workability good. Water of plasticity 21.2%. Cracks with rapid drying. Air shrinkage 4.7%.

P.C.E.: 3

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1795	2.12	13.49	Light reddish brown	Fairly hard
1845	2.85	12.20	Light reddish brown	Hard
1885	3.13	12.67	Light reddish brown	Hard
1925	3.88	10.76	Light reddish brown	Hard
1955	4.42	9.38	Medium reddish brown	Hard
1990	4.48	8.39	Medium reddish brown	Hard
2015	5.13	7.15	Medium reddish brown	Very hard
2035	5.79	5.01	Dark reddish brown	Very hard
2065	6.05	3.67	Dark reddish brown	Very hard
2080	5.83	3.61	Dark reddish brown	Very hard

POTENTIAL USES: Common brick and possibly drain tile.

CUMBERLAND COUNTY

Sample Number
CSP-64

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the cliff at Lower Cove north of Joggins (Fig. 24).

UTM: 388070 E
5062340 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Light brownish coloured shale

SAMPLE INTERVAL: Chip sample across 23 m of shale

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Moderately calcareous. Fair plasticity. Good workability. Water of plasticity 22.4%. Safe drying at 85°C. Air shrinkage 5.5%.

P.C.E.: 3

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1790	3.01	10.63	Medium orange brown	Hard
1835	3.91	9.04	Medium orange brown	Very hard
1885	5.53	7.10	Medium orange brown	Steel hard
1925	6.55	5.10	Light reddish brown	Steel hard
1955	7.46	3.39	Light reddish brown	Steel hard
1980	7.86	2.53	Light reddish brown	Steel hard
2010	8.23	1.54	Medium reddish brown	Steel hard
2035	9.55	1.02	Medium reddish brown	Steel hard
2060	7.35	1.58	Medium reddish brown	Steel hard
2075	5.11	1.13	Medium reddish brown	Steel hard

POTENTIAL USES: Possibly as raw material for common brick.

CUMBERLAND COUNTY

Sample Number
CSP-65

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the cliff at Lower Cove north of Joggins (Fig. 24).

UTM: 387970 E
5062210 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Light grey, fossiliferous shale.

SAMPLE INTERVAL: 5 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Slightly calcareous. Good workability. Good plasticity. Water of plasticity 24.4. Cracks with rapid drying. Air shrinkage 6.0%.

P.C.E.: 4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1170	3.56	11.75	Light orange brown	Very hard
1840	5.08	10.33	Light orange brown	Very hard
1885	6.52	8.23	Medium reddish brown	Steel hard
1925	7.73	4.89	Medium reddish brown	Steel hard
1960	8.30	3.27	Medium reddish brown	Steel hard
1995	8.66	2.61	Medium reddish brown	Steel hard
2025	7.91	2.26	Medium reddish brown	Steel hard
2050	5.76	2.53	Medium reddish brown	Steel hard

POTENTIAL USES: Common brick and drain tile.

CUMBERLAND COUNTY

Sample Number
CSP-66

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the cliff south of Lower Cove and north of Joggins (Fig. 24).

UTM: 387850 E
5062110 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Light grey shale with redbeds

SAMPLE INTERVAL: Chip sample from 12 m section of shale

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 24.1%. Cracks with rapid drying. Air shrinkage 5.3%.

P.C.E.: 4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1190	3.04	11.69	Orange brown	Hard
1840	4.17	9.37	Orange brown	Very hard
1880	5.32	7.90	Orange brown	Very hard
1915	6.57	5.34	Orange brown	Steel hard
1950	7.71	3.43	Light reddish brown	Steel hard
1980	7.85	2.22	Light reddish brown	Steel hard
2005	9.20	1.35	Light reddish brown	Steel hard
2030	9.32	0.35	Medium reddish brown	Steel hard
2055	9.44	0.47	Medium reddish brown	Steel hard
2075	9.10	0.44	Medium reddish brown	Steel hard

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-67

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: On the shore of Cumberland Basin, south of Lower Cove, north of Joggins (Fig. 24).

UTM: 387680 E
5061940 N

GEOLOGICAL UNIT: Cumberland Group, Pennslvanian age

DESCRIPTION: Medium brownish coloured shale

SAMPLE INTERVAL: 6 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Slightly calcareous. Good workability. Fair plasticity. Water of plasticity 24.0%. Cracks with rapid drying. Air shrinkage 5.2%.

P.C.E.: 3

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1790	3.54	10.23	Light orange brown	Very hard
1835	4.40	8.53	Light orange brown	Steel hard
1880	5.90	6.47	Medium reddish brown	Steel hard
1920	7.14	4.34	Medium reddish brown	Steel hard
1955	8.08	2.59	Medium reddish brown	Steel hard
1985	8.73	1.56	Medium reddish brown	Steel hard
2010	9.09	1.19	Medium reddish brown	Steel hard
2035	8.18	0.92	Medium reddish brown	Steel hard
2055	5.86	1.40	Medium reddish brown	Steel hard

POTENTIAL USES: Face brick, common brick and tile.

CUMBERLAND COUNTY

Sample Number
CSP-68

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Exposure along cliff at Lower Cove (Fig. 24).

UTM: 387480 E
5061830 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Light greyish to brownish shale

SAMPLE INTERVAL: 4.6 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Slightly calcareous. Good workability and plasticity. Water of plasticity 22%. Safe drying at 85°C. Air shrinkage 4.7%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1835	3.98	9.43	Light orange brown	Steel hard
1875	5.21	7.78	Light orange brown	Steel hard
1915	6.15	6.0	Light orange brown	Steel hard
1950	7.23	4.04	Light orange brown	Steel hard
1985	8.17	2.88	Medium reddish brown	Steel hard
2010	8.50	2.42	Medium reddish brown	Steel hard
2030	8.68	2.04	Medium reddish brown	Steel hard
2050	8.58	1.42	Medium reddish brown	Steel hard

POTENTIAL USES: Face brick, common brick and tile.

CUMBERLAND COUNTY

Sample Number
CSP-69

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Lower Cove, along the shore of the Cumberland Basin, in the vicinity of Joggins (Fig. 24).

UTM: 388330 E
5063510 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Dark brown, fine grained shale.

SAMPLE INTERVAL: 21 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Slightly calcareous. Good workability and plasticity. Water of plasticity 24.8%. Cracks with rapid drying. Air shrinkage 5.4%.

P.C.E.: 3 (started to bend at Cone 1)

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1755	2.61	12.20	Orange brown	Very hard
1805	3.52	10.72	Orange brown	Very hard
1855	4.55	8.87	Orange brown	Steel hard
1895	4.61	6.70	Orange brown	Steel hard
1930	6.62	4.69	Orange brown	Steel hard
1965	7.72	3.08	Reddish brown	Steel hard
1990	8.03	1.68	Reddish brown	Steel hard
2015	8.94	0.92	Reddish brown	Steel hard
2035	9.38	0.48	Reddish brown	Steel hard
2050	8.39	1.05	Reddish brown	Steel hard

POTENTIAL USES: Face brick, common brick and tile.

CUMBERLAND COUNTY

Sample Number
CSP-70

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the old coal mine road, northwest of the Town of Joggins (Fig. 24).

UTM: 388150 E
5061740 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Grey to bluish clay containing a few fossils, from a pit on the Dinty coal seam.

SAMPLE INTERVAL: Chip sample across 1 m bed of clay

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Fair workability and plasticity. Water of plasticity 32.0%. Cracks with rapid drying. Air shrinkage 7.0%.

P.C.E.: 6

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1795	5.51	24.07	Orange buff	Hard
1845	6.99	20.45	Orange buff	Hard
1885	8.62	17.64	Orange buff	Very hard
1925	10.49	13.53	Medium brown	Very hard
1955	11.49	10.81	Medium brown	Steel hard
1985	13.63	7.35	Medium brown	Steel hard
2015	14.54	5.18	Medium brown	Steel hard
2045	14.38	4.81	Medium brown	Steel hard
2070	14.36	2.61	Medium brown	Steel hard
2085	13.12	2.10	Medium brown	Steel hard

POTENTIAL USES: None due to the high firing shrinkage.

CUMBERLAND COUNTY

Sample Number
CSP-71

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the Maccan River, approximately 1 km northwest of South Athol (Fig. 21).

UTM: 403450 E
5055780 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Dark pinkish-brown shale with minor siltstone. The bed is approximately 12 m thick.

ATTITUDE OF BEDDING: Strike: 230°
Dip: Not determined

SAMPLE INTERVAL: 12 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Slightly calcareous. Good workability and plasticity. Water of plasticity 20.8%. Cracks with rapid drying. Air shrinkage 5.3%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1865	2.42	9.29	Medium orange brown	Very hard
1900	2.81	8.01	Medium orange brown	Steel hard
1935	3.94	6.67	Medium orange brown	Steel hard
1975	4.55	5.39	Reddish brown	Steel hard
2000	4.85	3.96	Reddish brown	Steel hard
2025	5.19	3.14	Reddish brown	Steel hard
2045	5.71	2.50	Reddish brown	Steel hard
2065	6.31	2.07	Reddish brown	Steel hard

POTENTIAL USES: Face brick, tile and possibly earthenware and artware.

CUMBERLAND COUNTY

Sample Number
CSP-72

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the bank of River Hebert, approximately 2.4 km south of the highway bridge (Fig. 23).

UTM: 392530 E
5058850 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Greyish coloured shale

ATTITUDE OF BEDDING: 240°/16° SE

SAMPLE INTERVAL: 3 m channel sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Noncalcareous. Good workability and plasticity. Water of plasticity 20.8%. Cracks with rapid drying. Air shrinkage 5.2%.

P.C.E.: 4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1840	3.16	9.78	Medium orange brown	Very hard
1855	4.22	8.16	Medium orange brown	Very hard
1915	4.35	6.23	Medium orange brown	Steel hard
1950	4.55	5.25	Medium orange brown	Steel hard
1975	6.23	4.10	Medium orange brown	Steel hard
2005	6.78	3.05	Medium orange brown	Steel hard
2025	7.12	2.46	Medium orange brown	Steel hard
2045	9.57	2.06	Medium orange brown	Steel hard

POTENTIAL USES: Common brick, face brick, tile and sewer pipe.

CUMBERLAND COUNTY

Sample Number
CSP-73

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: 2.4 km south of the highway bridge, along the bank of River Hebert (Fig. 23).

UTM: 392420 E
5058770 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Grey shale

ATTITUDE OF BEDDING: 225°/16° SE

SAMPLE INTERVAL: 8 m channel sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability. Very plastic. Water of plasticity 22.8%. Cracks with rapid drying. Air shrinkage 5.2%.

P.C.E.: 6

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1870	4.98	7.72	Orange brown	Steel hard
1910	6.07	6.67	Orange brown	Steel hard
1950	7.05	4.34	Orange brown	Steel hard
1975	7.67	3.07	Orange brown	Steel hard
2010	8.28	1.49	Reddish brown	Steel hard
2035	8.43	1.30	Reddish brown	Steel hard
2055	8.71	1.07	Reddish brown	Steel hard
2075	7.61	1.11	Reddish brown	Steel hard

POTENTIAL USES: Common brick, face brick, tile and sewer pipe.

CUMBERLAND COUNTY

Sample Number
CSP-74

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the bank of River Hebert, approximately 2.6 km south of the highway bridge (Fig. 23).

UTM: 391970 E
5058310 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Light brown shale

ATTITUDE OF BEDDING: 265°/21° SE

SAMPLE INTERVAL: 10.7 m channel sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 22.8%. Safe drying at 85°C. Air shrinkage 5.0%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1815	2.17	12.78	Orange brown	Very hard
1860	2.70	11.27	Orange brown	Very hard
1900	3.84	10.09	Orange brown	Very hard
1935	5.02	8.01	Orange brown	Very hard
1965	5.97	5.90	Orange brown	Steel hard
1990	6.78	3.94	Medium reddish brown	Steel hard
2020	9.67	2.13	Medium reddish brown	Steel hard
2040	8.05	1.63	Medium reddish brown	Steel hard
2055	8.23	1.08	Medium reddish brown	Steel hard
2075	8.57	0.77	Medium reddish brown	Steel hard

POTENTIAL USES: Common brick, face brick and tile

CUMBERLAND COUNTY

Sample Number
CSP-75

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Exposure occurs between McCarrons River and Ragged Reef Point on the shore of Chignecto Bay (Fig. 24).

UTM: 386720 E
5059650 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Grey shale, with associated narrow seams of coal.

ATTITUDE OF BEDDING: 262°/19° SE

SAMPLE INTERVAL: 3.7 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 22.8%. Cracks with rapid drying. Air shrinkage 4.3%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1795	3.59	10.75	Orange brown	Very hard
1840	4.75	8.57	Orange brown	Very hard
1885	5.95	6.91	Orange brown	Steel hard
1920	6.44	4.68	Orange brown	Steel hard
1955	7.88	3.24	Orange brown	Steel hard
1985	8.46	1.93	Brown	Steel hard
2010	8.63	1.16	Brown	Steel hard
2030	8.89	0.97	Brown	Steel hard
2050	8.83	0.90	Brown	Steel hard

POTENTIAL USES: Common brick, face brick and tile.

CUMBERLAND COUNTY

Sample Number
CSP-76

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: On the shore of Chignecto Bay, south of McCarrons River and north of Ragged Reef Point (Fig 24).

UTM: 386670 E
5059610 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Light grey, fossiliferous shale underlying a coal seam.

SAMPLE INTERVAL: 1 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability. Very plastic. Water of plasticity 32.0%. Safe drying. Air shrinkage 4.8%.

P.C.E.: 5

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1820	5.81	19.13	Light salmon	Hard
1865	8.31	14.59	Light salmon	Very hard
1900	10.29	8.73	Light salmon	Steel hard
1935	12.28	4.10	Light salmon	Steel hard
1965	13.01	1.66	Reddish brown	Steel hard
1990	13.51	1.48	Reddish brown	Steel hard
2015	13.65	1.69	Reddish brown	Steel hard
2035	11.24	1.70	Reddish brown	Steel hard
2055	9.63	2.86	Reddish brown	Steel hard

POTENTIAL USES: Not suitable for use by itself due to the high fired shrinkage.

CUMBERLAND COUNTY

Sample Number
CSP-77

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: On the shore of Chignecto Bay, south of McCarrons River, and 61 m south of sample CSP-75 (Fig. 24).

UTM: 386610 E
5059550 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Grey shale

ATTITUDE OF BEDDING: 262°/19° SE

SAMPLE INTERVAL: 3.7 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 25.2%. Safe drying. Air shrinkage 5.3%.

P.C.E.: 5

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1775	3.75	11.76	Light orange brown	Very hard
1825	4.78	9.80	Light orange brown	Very hard
1865	6.01	7.95	Light orange brown	Steel hard
1905	7.30	6.33	Light orange brown	Steel hard
1945	7.90	3.98	Light orange brown	Steel hard
1975	8.97	2.70	Light orange brown	Steel hard
2005	9.20	2.20	Light orange brown	Steel hard
2035	9.38	2.03	Reddish brown	Steel hard
2055	9.37	1.54	Reddish brown	Steel hard
2075	9.14	1.18	Reddish brown	Steel hard

POTENTIAL USES: Common brick, face brick and tile.

CUMBERLAND COUNTY

Sample Number
CSP-78

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the shore of Chignecto Bay, south of McCarrons River, and southwest of sample CSP-77 (Fig. 24).

UTM: 386430 E
5059460 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Reddish and greyish coloured shale.

ATTITUDE OF BEDDING: 273°/12° SW

SAMPLE INTERVAL: 6 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Noncalcareous. Fair workability. Good plasticity. Water of plasticity 25.0%. Cracks with rapid drying. Air shrinkage 5.2%.

P.C.E.: 5

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1790	4.12	11.63	Orange brown	Very hard
1840	5.69	9.34	Orange brown	Very hard
1855	6.69	7.37	Orange brown	Steel hard
1920	8.38	5.41	Orange brown	Steel hard
1955	9.50	3.03	Orange brown	Steel hard
1985	9.78	1.62	Reddish brown	Steel hard
2010	9.80	1.32	Reddish brown	Steel hard
2035	9.56	1.04	Reddish brown	Steel hard
2065	9.53	0.94	Reddish brown	Steel hard
2080	8.60	0.70	Reddish brown	Steel hard

POTENTIAL USES: Common brick.

CUMBERLAND COUNTY

Sample Number
CSP-79

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the shore of Chignecto Bay, south of McCarrons River, near Joggins, southwest of CSP-78 (Fig. 24).

UTM: 386230 E
5059420 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Medium grey shale

ATTITUDE OF BEDDING: 90°/14° S

SAMPLE INTERVAL: 3.7 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 20.0%. Safe drying at 85°C. Air shrinkage 4.2%.

P.C.E.: 6

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1800	3.16	10.42	Orange brown	Very hard
1855	4.15	8.93	Orange brown	Very hard
1895	5.53	7.05	Orange brown	Steel hard
1935	6.68	5.04	Orange brown	Steel hard
1965	7.44	3.04	Orange brown	Steel hard
2000	7.66	2.10	Orange brown	Steel hard
2035	7.60	1.59	Reddish brown	Steel hard
2070	7.40	1.22	Reddish brown	Steel hard
2095	7.27	1.02	Reddish brown	Steel hard
2115	6.16	1.05	Reddish brown	Steel hard
2135	4.63	0.99	Reddish brown	Steel hard

POTENTIAL USES: Common brick and tile.

CUMBERLAND COUNTY

Sample Number
CSP-80

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Between McCarrons River and Ragged Reef Point, southwest of Joggins (Fig. 24).

UTM: 305820 E
5059410 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Brownish-grey shale

SAMPLE INTERVAL: 9 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 21.6%. Safe drying at 85°C. Air shrinkage 4.7%.

P.C.E.: 4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1760	2.45	11.14	Orange brown	Very hard
1805	3.31	9.65	Orange brown	Very hard
1855	4.85	7.75	Orange brown	Steel hard
1895	5.99	6.61	Orange brown	Steel hard
1935	6.69	4.64	Orange brown	Steel hard
1965	7.45	3.26	Orange brown	Steel hard
1995	7.52	2.41	Reddish brown	Steel hard
2020	8.20	1.75	Reddish brown	Steel hard
2045	8.39	1.57	Reddish brown	Steel hard
2060	8.45	1.37	Reddish brown	Steel hard
2075	8.34	0.94	Reddish brown	Steel hard

POTENTIAL USES: Common brick and tile.

CUMBERLAND COUNTY

Sample Number
CSP-81

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the shore, at Ragged Reef Point, southwest of Joggins (Fig. 24).

UTM: 385190 E
5058990 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Red to greenish coloured shale.

ATTITUDE OF BEDDING: 268°/14° SE

SAMPLE INTERVAL: 4.6 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 23.6%. Cracks with rapid drying. Air shrinkage 5.2%.

P.C.E.: 5

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.87	7.45	Moderate reddish brown	Steel hard
04	6.67	5.19	Moderate reddish brown	Steel hard
02	9.00	0.32	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Face brick, tile and sewer pipe.

CUMBERLAND COUNTY

Sample Number
CSP-82

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Southwest of sample CSP-81 at Ragged Reef Point, southwest of Joggins (Fig. 24).

UTM: 384910 E
5058820 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Greenish to reddish coloured shale

ATTITUDE OF BEDDING: 330°/18° SW

SAMPLE INTERVAL: Chip sample across 4.6 m.

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 22.4%. Cracks with rapid drying. Air shrinkage 4.2%.

P.C.E.: 4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.79	9.12	Light moderate reddish brown	Very hard
04	4.36	4.13	Light moderate reddish brown	Steel hard
02	7.99	1.75	Reddish brown	Steel hard

POTENTIAL USES: Face brick, tile and sewer pipe.

CUMBERLAND COUNTY

Sample Number
CSP-83

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Near the tip of Ragged Reef Point, southwest of the Town of Joggins (Fig. 24).

UTM: 384500 E
5058760 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Light brown shale

SAMPLE INTERVAL: 4.6 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 24.4%. Cracks with rapid drying at 85°C. Air shrinkage 5.3%.

P.C.E.: 4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.08	7.69	Moderate reddish brown	Very hard
04	5.55	3.49	Moderate reddish brown	Steel hard
02	9.14	0.32	Dark moderate reddish brown	Steel hard

REMARKS: Some scumming on firing.

POTENTIAL USES: Common brick, hollow tile and drain tile.

CUMBERLAND COUNTY

Sample Number
CSP-84

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: East of the tip of Ragged Reef Point, southwest of Joggins (Fig. 24).

UTM: 384330 E
5058700 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Greyish shale and siltstone

SAMPLE INTERVAL: 3.7 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Hard, silty grey shale. Good workability and plasticity. Water of plasticity 22.8%. Safe drying. Air shrinkage 4.2%.

P.C.E.: 5

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.43	10.28	Light moderate reddish brown	Very hard
04	4.87	4.77	Moderate reddish brown	Steel hard
02	8.01	2.40	Moderate reddish brown	Steel hard

REMARKS: Scumming on firing.

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-86

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Joggins area, sample taken from under the 'Dirty Coal seam' (Fig. 24).

UTM: 387760 E
5061480 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Greyish to bluish clay underlying a coal seam. The clay contains some pebbles.

SAMPLE INTERVAL: 1.2 m channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Very good workabiity and plasticity. Water of plasticity 24.4%. Safe drying at 85°C. Air shrinkage 5.2%.

P.C.E.: 5

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1810	2.72	13.09	Light buff	Hard
1855	3.82	10.92	Light buff	Very hard
1905	5.39	8.57	Brownish buff	Very hard
1945	6.82	5.67	Brownish buff	Steel hard
1980	8.48	3.60	Brownish buff	Steel hard
2010	9.27	0.156	Brownish buff	Steel hard
2035	9.14	0.82	Medium brown	Steel hard
2060	8.17	0.59	Medium brown	Steel hard
2080	4.57	1.77	Medium brown	Steel hard

POTENTIAL USES: Common brick, face brick, tile and if oven fired at 2080°F earthenware and artware also.

CUMBERLAND COUNTY

Sample Number
CSP-87

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Joggins area (Fig. 24).

UTM: 387620 E
5061580 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Unconsolidated, greenish-grey clay

SAMPLE INTERVAL: 1.2 m chip sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Very good workability and plasticity. Water of plasticity 23.0%. Cracks with rapid drying. Air shrinkage 6.1%. Sample contains some pebbles.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1760	1.27	11.79		Hard
1810	2.08	10.25		
1850	2.48	9.23	Light reddish brown	Very hard
1895	2.98	7.18	Light reddish brown	Very hard
1935	3.88	5.78	Light reddish brown	Very hard
1965	4.36	4.18	Medium reddish brown	Steel hard
1995	5.73	3.17	Medium reddish brown	Steel hard
2025	5.99	2.59	Medium reddish brown	Steel hard
2045	6.11	2.25	Medium reddish brown	Steel hard
2065	6.30	2.26	Medium reddish brown	Steel hard

POTENTIAL USES: Common brick, face brick, tile, sewer pipe, earthenware and artware.

CUMBERLAND COUNTY

Sample Number
CSP-88

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the shore of Chignecto Bay, approximately 15 m north of the wharf at Joggins (Fig. 24).

UTM: 387000 E
5060900 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Hard, grey, fossiliferous shale and clay, between Joggins and Queen coal seams.

SAMPLE INTERVAL: 1.2 m chip sample

TYPE OF MATERIAL: Shale and clay

UNFIRED CHARACTERISTICS: Good workability. Very plastic. Water of plasticity 27.8%. Safe drying. Air shrinkage 5.9%.

P.C.E.: 4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1765	3.47	12.94	Orange brown	Very hard
1815	4.83	10.84	Orange brown	Very hard
1855	6.22	8.43	Orange brown	Steel hard
1895	7.87	6.05	Orange brown	Steel hard
1925	9.23	3.24	Medium reddish brown	Steel hard
1955	9.88	1.53	Medium reddish brown	Steel hard
1985	10.18	0.74	Medium reddish brown	Steel hard
2015	10.22	0.66	Medium reddish brown	Steel hard
2035	9.95	0.63	Medium reddish brown	Steel hard
2055	9.64	0.62	Medium reddish brown	Steel hard

POTENTIAL USES: Common brick and face brick.

CUMBERLAND COUNTY

Sample Number
CSP-90

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Sample from Kimberly coal seam, at River Hebert Coal Company, taken about 152 m down slope (Fig. 23).

UTM: 393050 E
5061250 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Dark grey shale containing coal and pyrite, from a bed within the coal seam.

SAMPLE INTERVAL: 1 m chip sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Fair workability and plasticity. Water of plasticity 20.8%. Cracks with rapid drying. Air shrinkage 4.1%

P.C.E.: 8

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.60	11.59	Light moderate reddish orange	Hard
04	1.57	7.88	Light pale reddish brown	Very hard
02	1.74	4.60	Light pale reddish brown	Very hard

REMARKS: Some scumming on firing. Cracked on firing.

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-92

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: River Hebert Coal Company in River Hebert, sample taken approximately 152 m down slope (Fig. 23).

UTM: 393050 E
5061250 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Grey to darkish grey shale and clay.

SAMPLE INTERVAL: 1.2 m chip sample

TYPE OF MATERIAL: Shale and clay

UNFIRED CHARACTERISTICS: Good workability. Very plastic. Water of plasticity 29.8%. Cracked on drying. Air shrinkage 5.5%.

P.C.E.: 4-5

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1775	2.72	19.38	Salmon	Hard
1825	4.50	15.84	Salmon	Hard
1870	6.30	12.42	Salmon	Very hard
1905	8.13	8.53	Salmon	Steel hard
1935	10.07	5.52	Salmon	Steel hard
1965	11.62	2.42	Reddish brown	Steel hard
1990	11.57	0.87	Reddish brown	Steel hard
2015	11.75	0.91	Reddish brown	Steel hard
2035	11.38	1.04	Reddish brown	Steel hard
2055	10.28	1.59	Reddish brown	Steel hard

POTENTIAL USES: Raw material of no value by itself as clay product due to high fired shrinkage.

CUMBERLAND COUNTY

Sample Number
CSP-93

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Section along shore line of Chignecto Bay, south of Ragged Reef Point and north of Two Rivers (Fig. 24).

UTM: 384190 E
5058430 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Rose-brown shale.

ATTITUDE OF BEDDING: 285°/24° SW

SAMPLE INTERVAL: 10.7 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 22.4%. Cracks with rapid drying. Air shrinkage 5.1%.

P.C.E.: 4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1760	2.03	11.29	Pinkish brown	Very hard
1810	2.73	9.78	Orange brown	Very hard
1855	3.99	8.14	Orange brown	Very hard
1895	5.52	6.80	Orange brown	Steel hard
1935	6.13	5.28	Orange brown	Steel hard
1965	7.37	3.63	Orange brown	Steel hard
1995	8.17	2.16	Medium reddish brown	Steel hard
2015	8.78	1.58	Medium reddish brown	Steel hard
2035	8.81	1.02	Medium reddish brown	Steel hard
2055	8.55	0.79	Medium reddish brown	Steel hard

POTENTIAL USES: Common and face brick.

CUMBERLAND COUNTY

Sample Number
CSP-94

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: North of Two Rivers, and south of Ragged Reef Point, along the shore of Chignecto Bay (Fig. 24).

UTM: 384220 E
5058220 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Red to greenish shale.

ATTITUDE OF BEDDING: 315°/24° S

SAMPLE INTERVAL: 9 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 24.4%. Cracks with rapid drying. Air shrinkage 5.8%.

P.C.E.: 4-5

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1770	2.32	12.16	Orange brown	Hard
1820	3.34	11.31	Orange brown	Very hard
1865	4.41	9.04	Orange brown	Very hard
1900	5.84	7.04	Orange brown	Steel hard
1935	7.10	5.23	Orange brown	Steel hard
1965	8.23	3.29	Orange brown	Steel hard
1995	8.98	1.55	Light reddish brown	Steel hard
2020	9.38	0.83	Light reddish brown	Steel hard
2040	9.61	0.73	Light reddish brown	Steel hard
2060	9.26	0.57	Light reddish brown	Steel hard

POTENTIAL USES: Common brick, face brick and sewer pipe.

CUMBERLAND COUNTY

Sample Number
CSP-95

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: Along the shore of Chignecto Bay, north of Two Rivers (Fig. 24).

UTM: 384220 E
5057460 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Brownish coloured, sandy shale.

SAMPLE INTERVAL: 9 m chip sample, 4.5 kg.

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Fair workability and plasticity. Water of plasticity 22.6%. Safe drying. Air shrinkage 5.8%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1795	1.55	11.04	Light orange brown	Very hard
1845	2.85	9.87	Light orange brown	Very hard
1885	3.79	8.65	Light orange brown	Steel hard
1925	4.16	7.29	Medium orange brown	Steel hard
1965	5.62	5.75	Medium orange brown	Steel hard
1995	6.17	4.29	Medium reddish brown	Steel hard
2020	6.57	3.50	Medium reddish brown	Steel hard
2045	7.17	2.78	Medium reddish brown	Steel hard
2065	7.96	2.18	Medium reddish brown	Steel hard

POTENTIAL USES: Common and face brick.

CUMBERLAND COUNTY

Sample Number
CSP-96

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: South of Two Rivers Point, along Chignecto Bay (Fig. 24).

UTM: 384050 E
5057230 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Brown shale, 4.6 m thick.

SAMPLE INTERVAL: 4.6 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 24.0%. Cracks with rapid drying. Air shrinkage 5.8%.

P.C.E.: 4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1795	2.62	10.30	Light orange brown	Very hard
1840	3.42	9.27	Light orange brown	Very hard
1885	4.35	8.14	Light reddish brown	Steel hard
1920	5.26	6.87	Light reddish brown	Steel hard
1955	6.50	5.67	Light reddish brown	Steel hard
1985	7.49	4.34	Reddish brown	Steel hard
2015	8.08	3.06	Reddish brown	Steel hard
2035	8.44	2.29	Reddish brown	Steel hard
2055	8.37	1.83	Reddish brown	Steel hard

POTENTIAL USES: Common and face brick.

CUMBERLAND COUNTY

Sample Number
CSP-97

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: At Two Rivers, Chignecto Bay, south of Ragged Reef Point (Fig. 24).

UTM: 384200 E
5057000 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Greyish-brown shale

ATTITUDE OF BEDDING: 290°/15° SW

SAMPLE INTERVAL: 3 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 22.4%. Cracks with rapid drying. Air shrinkage 5.5%.

P.C.E.: 4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1790	2.40	10.00	Light orange brown	Very hard
1830	3.13	9.06	Light orange brown	Very hard
1875	3.90	8.04	Medium orange brown	Steel hard
1910	5.21	6.73	Medium orange brown	Steel hard
1940	5.96	5.19	Medium orange brown	Steel hard
1970	6.88	3.76	Medium orange brown	Steel hard
1995	7.79	2.70	Light reddish brown	Steel hard
2020	8.27	1.79	Light reddish brown	Steel hard
2035	8.74	1.43	Light reddish brown	Steel hard

POTENTIAL USES: Common brick and face brick.

CUMBERLAND COUNTY

Sample Number
CSP-98

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: On the shore of Chignecto Bay, 61 m northwest of sample CSP-97 in the vicinity of Two Rivers, south of Ragged Reef Point (Fig. 24).

UTM: 383660 E
5057210 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Grey shale, 3.7 m in thickness.

SAMPLE INTERVAL: 3.7 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 23.4%. Cracks with rapid drying. Air shrinkage 5.6%.

P.C.E.: 12+

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1800	3.11	11.29	Light brown	Hard
1865	4.38	9.23	Orange brown	Very hard
1915	5.68	7.05	Orange brown	Very hard
1960	7.00	4.89	Orange brown	Very hard
2005	7.74	2.94	Orange brown	Steel hard
2050	7.92	2.10	Orange brown	Steel hard
2085	8.31	1.59	Orange brown	Steel hard
2125	8.33	1.37	Reddish brown	Steel hard
2155	8.37	1.03	Reddish brown	Steel hard
2180	8.32	1.02	Reddish brown	Steel hard
2205	7.98	1.00	Reddish brown	Steel hard
2220	7.78	1.02	Reddish brown	Steel hard

POTENTIAL USES: Face brick, common brick and tile.

CUMBERLAND COUNTY

Sample Number
CSP-99

TOPOGRAPHICAL SHEET: 21H/10

LOCATION: In a cove, 1.6 km northeast of Flat Brook (Fig. 25).

UTM: 380430 E
5054790 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Interbedded, red to brownish-red shale.

ATTITUDE OF BEDDING: 210°/11° SE

SAMPLE INTERVAL: 4.6 m chip sample

TYPE OF MATERIAL: Shale

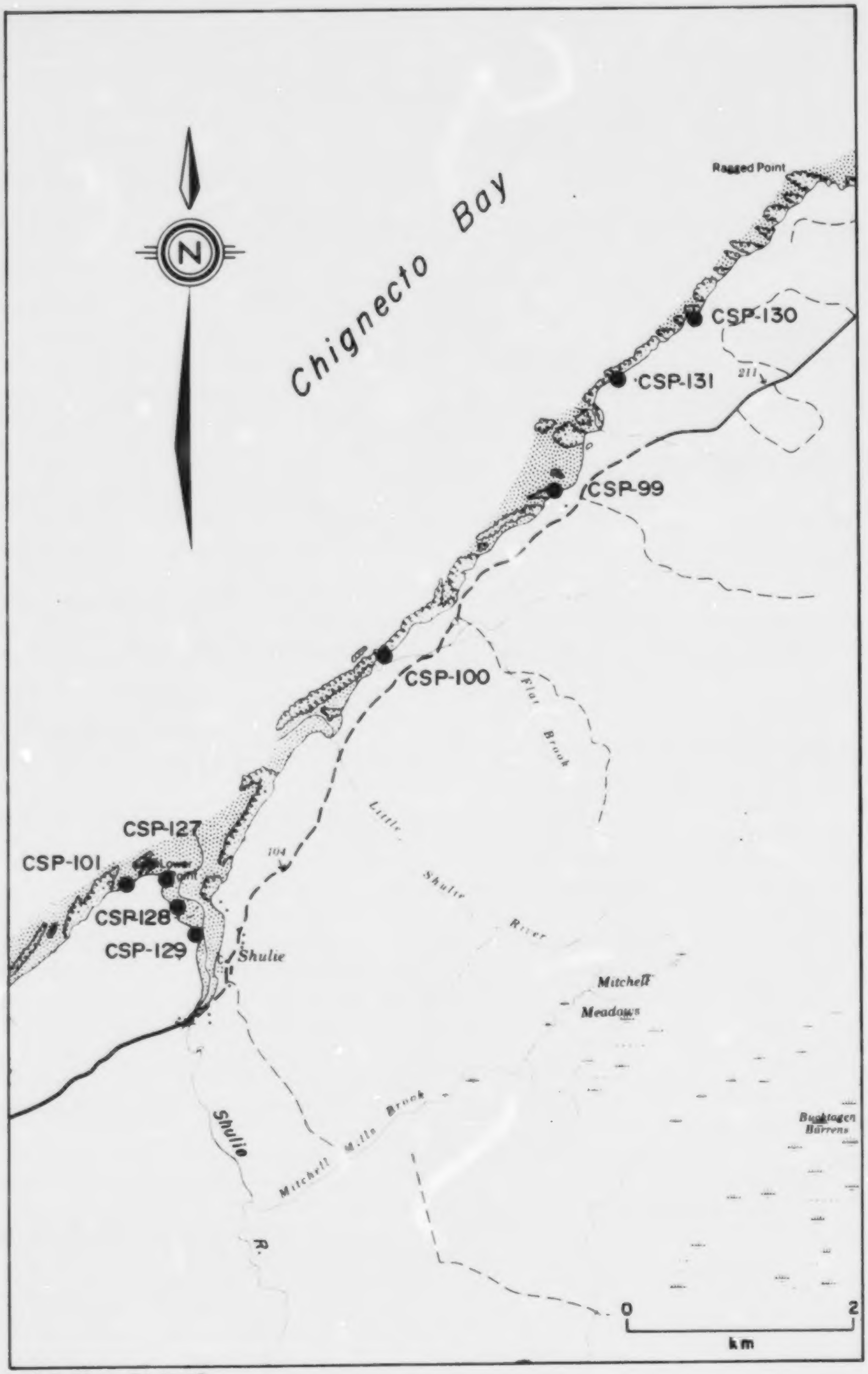
UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 24.4%. Cracks with rapid drying. Air shrinkage 5.5%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1780	4.17	7.96	Light orange brown	Steel hard
1825	5.44	6.20	Light orange brown	Steel hard
1865	6.45	4.56	Light reddish brown	Steel hard
1895	7.65	2.44	Light reddish brown	Steel hard
1925	8.01	1.08	Light reddish brown	Steel hard
1955	7.75	0.84	Medium reddish brown	Steel hard
1980	7.68	0.67	Medium reddish brown	Steel hard
2005	7.76	0.72	Medium reddish brown	Steel hard
2020	7.58	0.89	Medium reddish brown	Steel hard
2035	7.69	0.82	Medium reddish brown	Steel hard

POTENTIAL USES: Common brick, face brick and tile.


N
Chignecto Bay
Ragged Point
CSP-130
CSP-131
211
CSP-99
CSP-100
Flat Brook
Little Shulie River
104
CSP-127
CSP-101
Lower Cove
CSP-128
CSP-129
Shulie
Mitchell Meadows
Shulie R.
Mitchell Mills Brook
Buchtagen Barrens
0
2
km

Ref. Map 21-H-10

Figure 25. Location map for samples CSP-99-101, 127-131 (Shulie)

CUMBERLAND COUNTY

Sample Number
CSP-100

TOPOGRAPHICAL SHEET: 21H/10

LOCATION: Along Chignecto Bay at Flat Brook, approximately 2.4 km northeast of Shulie River (Fig. 25).

UTM: 378840 E
5053350 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Brown shale

SAMPLE INTERVAL: 7.6 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 22.8%. Cracks with rapid drying. Air shrinkage 5.1%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1785	3.64	7.02	Light orange brown	Steel hard
1835	5.23	5.61	Light orange brown	Steel hard
1875	6.46	3.92	Medium orange brown	Steel hard
1905	7.81	2.26	Medium orange brown	Steel hard
1945	8.45	1.01	Medium orange brown	Steel hard
1975	8.67	0.70	Medium reddish brown	Steel hard
2000	8.20	0.52	Medium reddish brown	Steel hard
2025	7.82	0.57	Medium reddish brown	Steel hard
2045	7.08	0.71	Medium reddish brown	Steel hard
2065	7.33	0.71	Medium reddish brown	Steel hard

POTENTIAL USES: Common brick, face brick and tile.

CUMBERLAND COUNTY

Sample Number
CSP-101

TOPOGRAPHICAL SHEET: 21H/10

LOCATION: Along the shore of Chignecto Bay approximately 305 m southwest of Shulie River (Fig. 25).

UTM: 376560 E
5051400 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Light rose-brown shale

ATTITUDE OF BEDDING: 155°/7° NE

SAMPLE INTERVAL: 6 m chip sample, 4.5 kg.

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 22.4%. Cracks with rapid drying. Air shrinkage 5.3%.

P.C.E.: 4-5

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1800	3.66	8.54	Light orange brown	Very hard
1845	5.04	7.12	Light orange brown	Very hard
1880	5.97	5.56	Medium orange brown	Very hard
1915	7.36	3.62	Medium orange brown	Steel hard
1945	8.31	1.84	Medium orange brown	Steel hard
1980	8.76	1.00	Medium orange brown	Steel hard
2005	8.82	0.78	Light reddish brown	Steel hard
2030	8.46	0.86	Light reddish brown	Steel hard
2045	7.89	0.93	Light reddish brown	Steel hard

POTENTIAL USES: Common brick, face brick and tile.

CUMBERLAND COUNTY

Sample Number
CSP-102

TOPOGRAPHICAL SHEET: 21H/10

LOCATION: Along the shore of Chignecto Bay, Sand Cove, approximately 3.2 km northeast of Sand River (Fig. 26).

UTM:	370790 E
	5046500 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Light rose-brown shale and siltstone

ATTITUDE OF BEDDING: 175°/9° NE

SAMPLE INTERVAL: 9 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Hard, silty, light rose shale. Fair workability and plasticity. Water of plasticity 20.5%. Cracks with rapid drying. Air shrinkage 3.6%.

P.C.E.: 7

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.60	9.78	Moderate reddish brown	Steel hard
04	4.84	5.80	Dark moderate reddish brown	Steel hard
02	7.01	1.99	Dark reddish brown	Steel hard

POTENTIAL USES: Common brick

CUMBERLAND COUNTY

Sample Number
CSP-103

TOPOGRAPHICAL SHEET: 21H/09

LOCATION: West of Lower Cove, on the shore of the Cumberland Basin (Fig. 24).

UTM: 388090 E
5064280 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Greyish-brown clay with carbonaceous material.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Very good workability. Good plasticity. Water of plasticity 30.4%. Very little cracking with rapid drying. Air shrinkage 6.0%.

P.C.E.: 3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.20	12.68	Moderate reddish brown	Hard
04	7.27	5.04	Light moderate reddish brown	Steel hard
02	8.41	0.78	Dark reddish brown	Steel hard

REMARKS: Scumming on firing

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-104

TOPOGRAPHICAL SHEET: 21H/07

LOCATION: Exposure in cliff along the shore of Greville Bay, approximately 1.6 km south of Spencers Island wharf, Parrsboro area (Fig. 19).

UTM: 365930 E
5022000 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Interbedded shale, siltstone and sandstone occurring in steeply dipping beds. Shale is dark reddish brown, gritty and highly fractured.

ATTITUDE OF BEDDING: 154°/45° SW

SAMPLE INTERVAL: 3.7 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 23.2%. Cracks with rapid drying. Air shrinkage 4.9%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1795	4.22	8.59	Light orange brown	Steel hard
1835	5.09	6.92	Light reddish brown	Steel hard
1880	6.35	4.86	Light reddish brown	Steel hard
1915	7.06	3.31	Light reddish brown	Steel hard
1945	7.55	2.10	Light reddish brown	Steel hard
1975	7.77	1.08	Medium reddish brown	Steel hard
2005	8.16	0.79	Medium reddish brown	Steel hard
2030	8.01	0.63	Medium reddish brown	Steel hard
2050	6.62	0.63	Medium reddish brown	Steel hard

POTENTIAL USES: Common brick, face brick and tile.

CUMBERLAND COUNTY

Sample Number
CSP-105

TOPOGRAPHICAL SHEET: 21H/07

LOCATION: Exposure 1.4 km south of Spencers Island, along shore of Greville Bay (Fig. 19).

UTM: 365920 E
5022140 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Light rose-brown shale containing some gritty material.

ATTITUDE OF BEDDING: 127°/57° NW

SAMPLE INTERVAL: 4.6 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Slightly calcareous rose-brown shale. Fair workability. Good plasticity. Water of plasticity 22.4%. Cracks with rapid drying. Air shrinkage 4.9%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	5.44	5.77	Moderate reddish brown	Steel hard
04	8.06	0.88	Moderate reddish brown	Steel hard
02	5.78	0.09	Moderate reddish brown	Steel hard

POTENTIAL USES: Face brick, tile and sewer pipe.

CUMBERLAND COUNTY

Sample Number
CSP-106

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: On the shore of the Minas Basin at Two Islands, approximately 8 km east of Parrsboro (Fig. 27).

UTM: 405160 E
5027380 N

GEOLOGICAL UNIT: Annapolis Group, Blomidon Formation, Triassic age

DESCRIPTION: Gritty, poorly consolidated shale, red to greenish red in colour. Beds are thick with minor beds of siltstone and sandstone.

ATTITUDE OF BEDDING: 95°/16° SW

SAMPLE INTERVAL: 15 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Hard, highly calcareous, sandy, light-brown shale. Poor workability. Fair plasticity. Water of plasticity 26.6%. Cracks with rapid drying. Air shrinkage 5.6%.

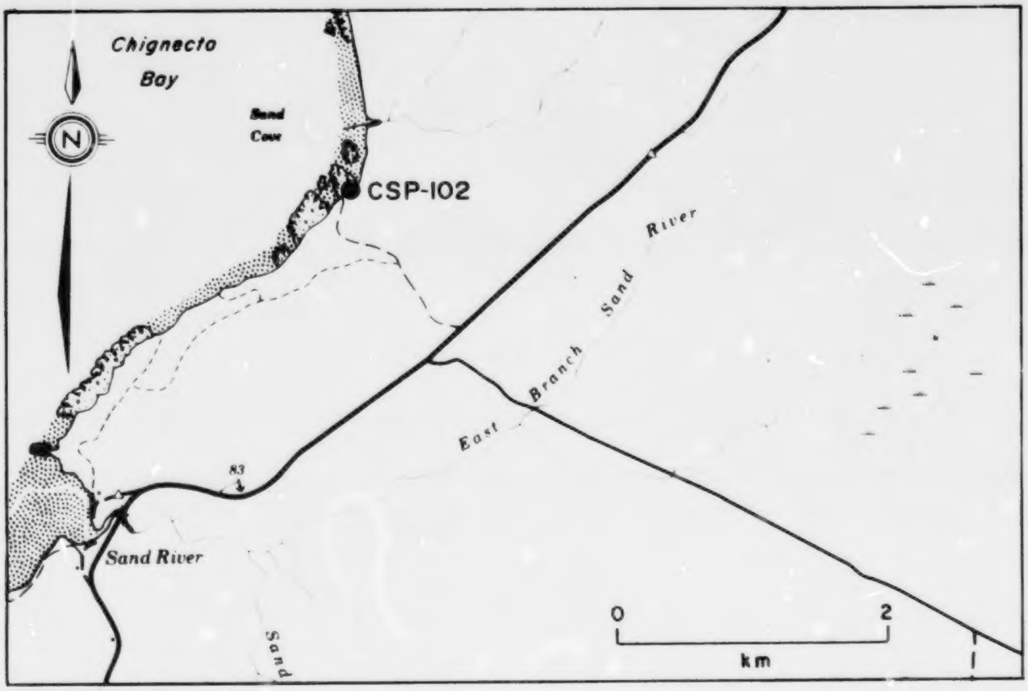
P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	0.88	16.03	Pale reddish brown	Hard
04	1.51	13.92	Dark pale reddish brown	Hard
02	6.09	2.60	Dark pale reddish brown	Hard

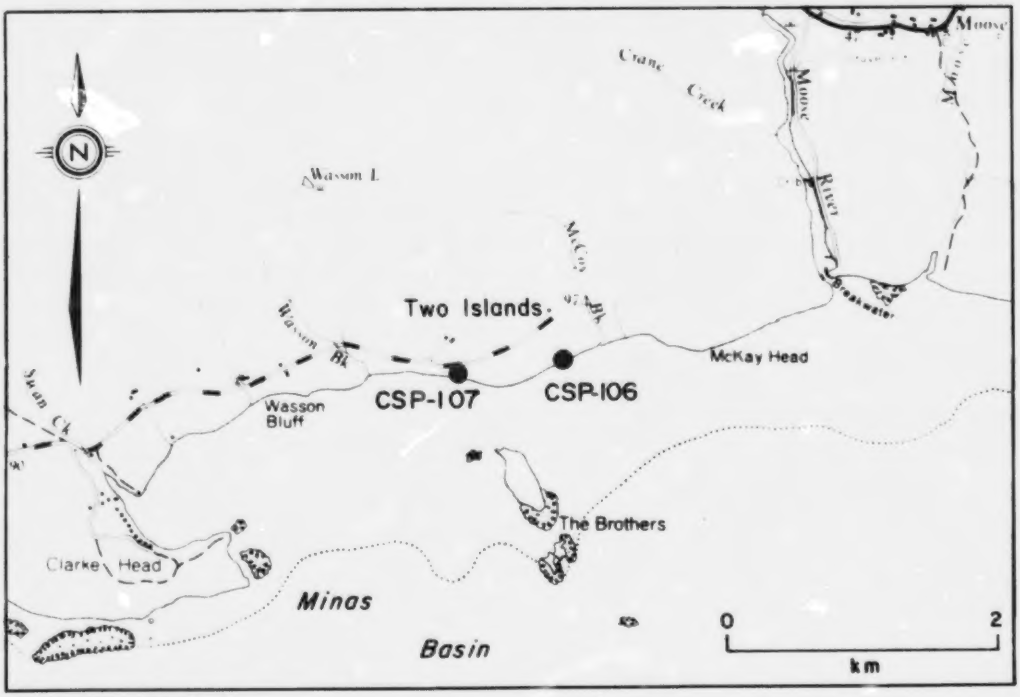
REMARKS: Short firing range

POTENTIAL USES: None


Chignecto
Bay
Sand
Cove
N
CSP-102
River
Sand
Branch
East
83
Sand River
Sand
0
2
km

Ref. Map 21-H-10

Figure 26. Location map for sample CSP-102 (Sand Cove)


N
Moose
Crane
Creek
Moose
River
Wasson L
McCoy
Two Islands
Wasson
Bk
Swan Ck
CSP-107
CSP-106
McKay Head
Breakwater
Wasson
Bluff
The Brothers
Clarke Head
Minas
Basin
0
2
km

Ref. Map 21-H-8

Figure 27. Location map for samples CSP-106, 107 (Two Islands)

CUMBERLAND COUNTY

Sample Number
CSP-107

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: On the shore of the Minas Basin at Two Islands, approximately 7 km east of Parrsboro (Fig. 27).

UTM: 404300 E
5027250 N

GEOLOGICAL UNIT: Annapolis Group, Blomidon Formation, Triassic age

DESCRIPTION: Gritty shale bed, 10.7 m in thickness

SAMPLE INTERVAL: 10.7 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Hard, highly calcareous, light brown shale and siltstone. Poor workability. Fair plasticity. Water of plasticity 22.4%. Cracks with rapid drying. Air shrinkage 5.6%

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	0.35	14.13	Pale reddish brown	Hard
04	1.33	12.14	Light pale reddish brown	Hard
02	7.23	0.61	Light pale reddish brown	Steel hard

REMARKS: Short firing range

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-108

TOPOGRAPHICAL SHEET: 21H/07

LOCATION: On the shore of Greville Bay at the mouth of Fox River, approximately 2.6 km southeast of Port Greville (Fig. 28).

UTM: 381430 E
5027780 N

GEOLOGICAL UNIT: Annapolis Group, Blomidon Formation, Triassic age

DESCRIPTION: Hard, silty, light rose-brown shale with narrow lenses of siltstone.

ATTITUDE OF BEDDING: 95°/16° SW

SAMPLE INTERVAL: 15 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Silty shale. Good workability and plasticity. Water of plasticity 22.8%. Safe drying at 85°C. Air shrinkage 5.0%.

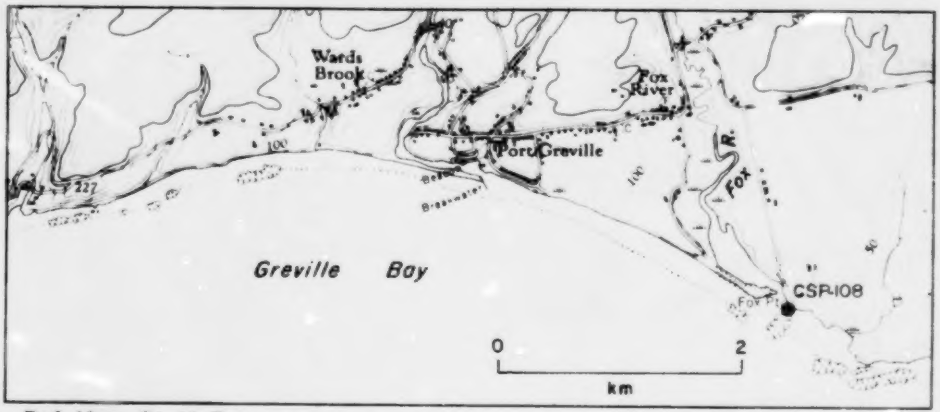
P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.24	7.85	Moderate reddish brown	Very hard
04	7.13	1.91	Dark moderate reddish brown	Steel hard
02	6.84	0.02	Dark reddish brown	Steel hard

REMARKS: Some scumming on firing.

POTENTIAL USES: Common brick, hollow tile and drain tile.



Ref. Map 21-H-7

Figure 28. Location map for sample CSP-108 (Fox Point)

CUMBERLAND COUNTY

Sample Number
CSP-109

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: Along the shore of Greville Bay, approximately 3.2 km southwest of the Village of Diligent River (Fig. 29).

UTM: 383430 E
5027380 N

GEOLOGICAL UNIT: Riversdale Group, Lower Pennsylvanian age

DESCRIPTION: Light rose-brown shale, having highly fractured and irregular beds.

SAMPLE INTERVAL: Chip sample across 9 m

TYPE OF MATERIAL: Shale

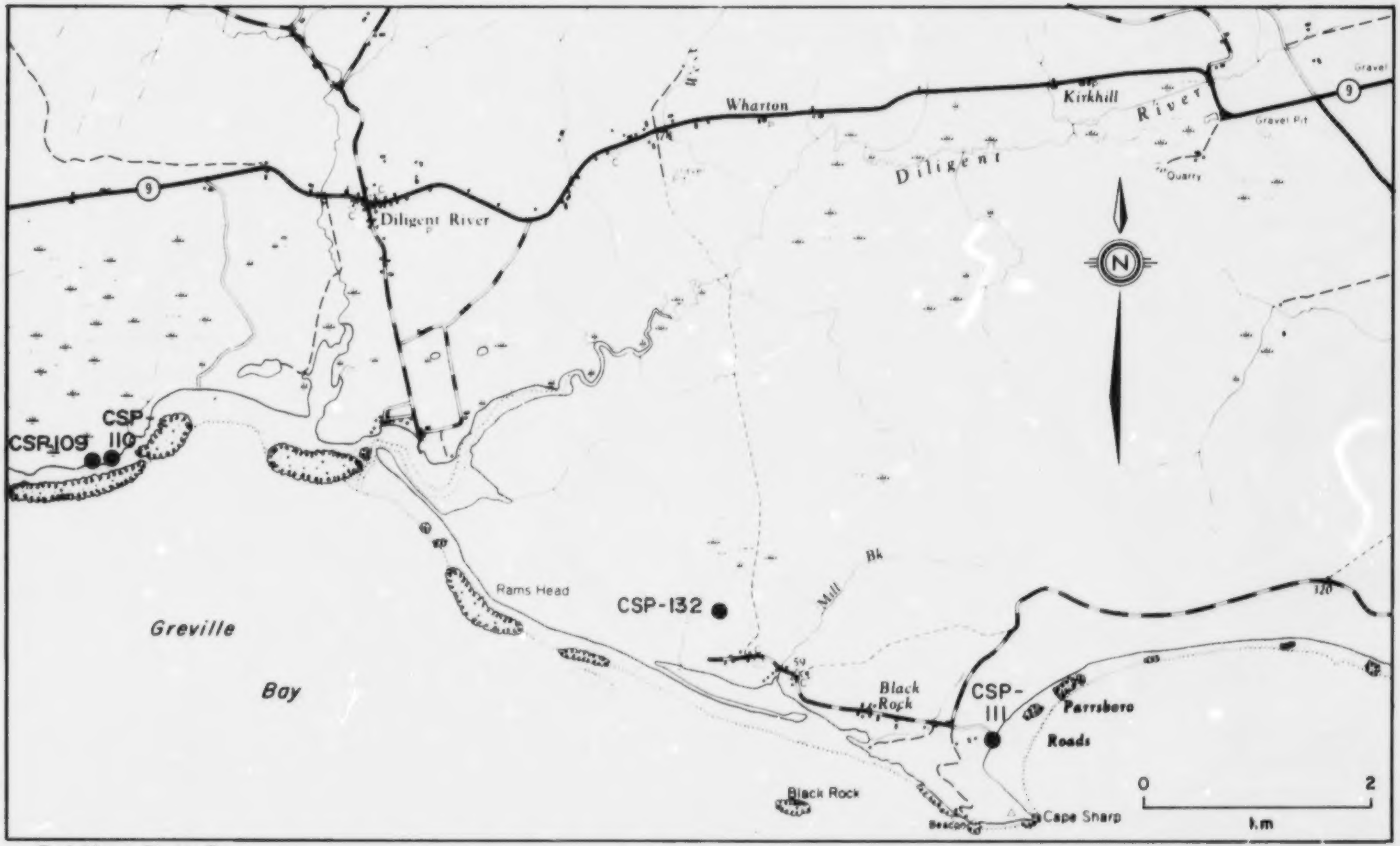
UNFIRED CHARACTERISTICS: Slightly calcareous light-rose brown shale. Good workability and plasticity. Water of plasticity 22.0%. Cracks with rapid drying. Air shrinkage 5.4%.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	5.65	5.05	Moderate reddish brown	Steel hard
04	7.85	1.22	Dark mod. reddish brown	Steel hard
02	5.98	0.06	Dark reddish brown	Steel hard

POTENTIAL USES: Face brick, tile and sewer pipe


Wharton
Kirkhill
River
Diligent
Gravel
Gravel Pit
Quarry
9
Diligent River
N
CSP-110
CSP-109
Rams Head
CSP-132
Mill
Bk
120
59
Greville
Bay
Black Rock
CSP-111
Parrsboro
Roads
Black Rock
Beacon
Cape Sharp
0
2
km

Ref. Map 21-H-8

Figure 29. Location map for samples CSP-109-111, 132 (Black Rock)

CUMBERLAND COUNTY

Sample Number
CSP-110

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: About 3.2 km southwest of Diligent River and approximately 152 m northeast of CSP-109 (Fig. 29).

UTM: 383590 E
5027420 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Fractured gritty shale with minor siltstone.

ATTITUDE OF BEDDING: 280°/46° NW

SAMPLE INTERVAL: 9 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Calcareous, hard, silty, light rose-brown shale. Fair workability. Good plasticity. Water of plasticity 20.2%. Safe drying. Air shrinkage 4.7%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.15	7.67	Moderate reddish brown	Very hard
04	5.71	2.90	Moderate reddish brown	Steel hard
02	6.55	0.17	Moderate reddish brown	Steel hard

POTENTIAL USES: Face brick, tile and sewer pipe.

CUMBERLAND COUNTY

Sample Number
CSP-111

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: Along a steep cliff at West Bay, east of Black Rock (Fig. 29).

UTM: 391110 E
5024860 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Highly fractured, dark reddish-brown shale.

SAMPLE INTERVAL: 7.6 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Highly calcareous, light rose-brown shale. Good workability and plasticity. Water of plasticity 22.4%. Cracks with rapid drying. Air shrinkage 5.1%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	4.83	5.84	Moderate reddish brown	Steel hard
04	9.45	2.07	Dark moderate reddish brown	Steel hard
02	6.23	0.18	Dark reddish brown	Steel hard

POTENTIAL USES: Face brick, tile and sewer pipe.

CUMBERLAND COUNTY

Sample Number
CSP-112

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: Along the shore at East Bay, approximately 805 m northwest of Partridge Island (Fig. 30).

UTM: 394380 E
5025550 N

GEOLOGICAL UNIT: Uncertain, probably Riversdale Group, Pennsylvanian age

DESCRIPTION: Gritty to very fine, dark reddish-brown shale

ATTITUDE OF BEDDING: 112°/87° SW

SAMPLE INTERVAL: 7.6 m chip sample, 6.8 kg

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Light purple-brown shale. Fair workability and plasticity. Water of plasticity 20.0%. Safe drying at 85°C. Air shrinkage 5.2%

P.C.E.: 5+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.22	10.48	Moderate reddish brown	Very hard
04	5.78	3.52	Moderate reddish brown	Very hard
02	6.78	0.86	Moderate reddish brown	Very hard

POTENTIAL USES: Common brick and face brick

CUMBERLAND COUNTY

Sample Number
CSP-113

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: Along the shore at East Bay, adjacent to Partridge Island (Fig. 30).

UTM: 395250 E
5024950 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Greyish and greenish shale

SAMPLE INTERVAL: 7.6 m chip sample

TYPE OF MATERIAL: Shale

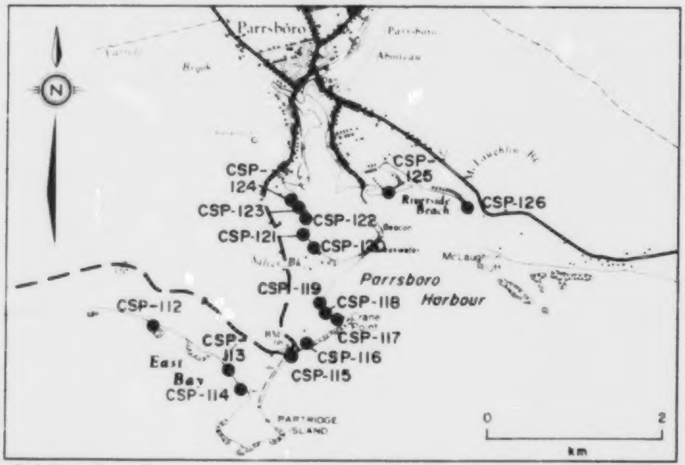
UNFIRED CHARACTERISTICS: Calcareous. Poor workability. Fair plasticity. Water of plasticity 18.0%. Safe drying. Air shrinkage 3.5%

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	+0.01	13.80	Pale reddish brown	Hard
04	0.26	13.27	Pale reddish brown	Very hard
02	3.53	4.20	Pale reddish brown	Steel hard

POTENTIAL USES: Common brick


N
Parrsboro
Parrsboro
Aboiteau
Brook
CSP-124
CSP-123
CSP-122
CSP-121
CSP-120
CSP-125
CSP-126
Riverside Beach
Beacon
McLaughlin Rd
Parrsboro Harbour
CSP-119
CSP-118
Crane Point
CSP-117
CSP-116
CSP-115
CSP-112
CSP-113
East Bay
CSP-114
PARTRIDGE ISLAND
0
2
km

Ref Map 21-H-8

Figure 30. Location map for samples CSP-112-126 (Parrsboro)

CUMBERLAND COUNTY

Sample Number
CSP-114

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: Along the shore at East Bay adjacent to the northern side of the causeway to Partridge Island (Fig. 30).

UTM: 395380 E
5024770 N

GEOLOGICAL UNIT: Blomidon Formation, Annapolis Group, Triassic age

DESCRIPTION: Plastic clay appears extensive, with a thickness of 2.5 m.

SAMPLE INTERVAL: 2.5 m chip sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Very good workability. Very plastic. Water of plasticity 30.0%. Cracks with rapid drying. Air shrinkage 7.7%

P.C.E.: 2-3

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1765	0.44	19.01	Light brown	Fairly hard
1815	0.42	18.72	Light brown	Hard
1855	0.98	17.76	Light brown	Hard
1890	1.47	16.89	Light brown	Hard
1925	2.37	15.10	Light brown	Hard
1960	3.57	11.88	Medium brown	Very hard
1990	5.68	8.62	Medium brown	Very hard
2010	8.19	5.12	Medium brown	Steel hard
2035	9.86	2.62	Medium brown	Steel hard
2050	10.24	1.07	Dark brown	Steel hard

POTENTIAL USES: Common brick, drain and chimney tile.

CUMBERLAND COUNTY

Sample Number
CSP-115

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: Exposure between Crane Point and Partridge Island, approximately 3.3 km south of the Town of Parrsboro (Fig. 30).

UTM: 395920 E
5025180 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Brownish-red shale. Bed continuous for over 91 m.

ATTITUDE OF BEDDING: 240°/21° SW

SAMPLE INTERVAL: Grab sample along strike

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Hard, silty shale. Fair workability and plasticity. Water of plasticity 17.2%. Cracks with rapid drying. Air shrinkage 3.5%.

P.C.E.: 5+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.87	4.97	Moderate reddish brown	Steel hard
04	6.60	2.53	Dark moderate reddish brown	Steel hard
02	6.41	0.19	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Common brick and face brick.

CUMBERLAND COUNTY

Sample Number
CSP-116

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: Between Crane Point and Partridge Island approximately 3.2 km south of Parrsboro (Fig. 30).

UTM: 396100 E
5025300 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Rose coloured shale with some siltstone, exposed for 122 m.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Hard, silty shale. Poor workability. Fair plasticity. Water of plasticity 16.4%. Safe drying at 85°C. Air shrinkage 2.9%.

P.C.E.: 5+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.00	5.87	Moderate reddish brown	Steel hard
04	5.14	2.24	Dark mod. reddish brown	Steel hard
02	3.70	0.25	Dark reddish brown	Steel hard

POTENTIAL USES: Common brick

CUMBERLAND COUNTY

Sample Number
CSP-117

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: At Crane Point, about 3 km south of Parrsboro (Fig. 30).

UTM: 396440 E
5025590 N

GEOLOGICAL UNIT: Probably Riversdale Group, Pennsylvanian age

DESCRIPTION: Grey shale, 3 m in thickness

ATTITUDE OF BEDDING: 280°/55° NE

SAMPLE INTERVAL: Chip sample across 3 m

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Poor workability. Fair plasticity. Water of plasticity 16.4%. Cracks with rapid drying. Air shrinkage 1.9%

P.C.E.: 5+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.96	7.24	Moderate reddish brown	Very hard
04	5.50	2.10	Dark moderate reddish brown	Steel hard
02	6.34	0.35	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Common brick

CUMBERLAND COUNTY

Sample Number
CSP-118

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: Sample from Crane Point, about 3 km south of Parrsboro (Fig. 30).

UTM: 396280 E
5025700 N

GEOLOGICAL UNIT: Probably Riversdale Group, Pennsylvanian age

DESCRIPTION: Light grey shale

SAMPLE INTERVAL: 3.7 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Fair workability and plasticity. Water of plasticity 16.6%. Cracks with rapid drying. Air shrinkage 1.8%

P.C.E.: 5+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.12	8.00	Moderate reddish brown	Very hard
04	4.05	4.41	Moderate reddish brown	Steel hard
02	4.43	1.80	Moderate reddish brown	Steel hard

POTENTIAL USES: Common and face brick

CUMBERLAND COUNTY

Sample Number
CSP-119

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: At the mouth of Salter Brook, approximately 2.8 km south of Parrsboro (Fig. 30).

UTM: 396250 E
5025810 N

GEOLOGICAL UNIT: Probably Riversdale Group, Pennsylvanian age

DESCRIPTION: Grey shale to siltstone

SAMPLE INTERVAL: 2.4 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Hard, silty, grey shale. Fair workability and plasticity. Water of plasticity 18.2%. Cracks with rapid drying. Air shrinkage 2.7%.

P.C.E.: 5+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.40	7.54	Moderate reddish brown	Very hard
04	7.19	2.10	Dark moderate reddish brown	Steel hard
02	7.28	0.03	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Common brick and face brick

CUMBERLAND COUNTY

Sample Number
CSP-120

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: Along the western shore of Parrsboro Harbour near the mouth of the Parrsboro River (Fig. 30).

UTM: 396180 E
5026420 N

GEOLOGICAL UNIT: Clay overlying Riversdale Group of Pennsylvanian age

DESCRIPTION: Plastic red clay overlain by beach sand, gravel and boulders.

SAMPLE INTERVAL: 1 m vertical section

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Very good workability. Very plastic. Water of plasticity 30.0%. Cracks with rapid drying. Air shrinkage 5.5%

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1780	4.41	13.53	Orange brown	Very hard
1825	5.78	9.16	Orange brown	Very hard
1875	6.81	7.01	Orange brown	Steel hard
1910	8.45	3.47	Orange brown	Steel hard
1940	9.62	0.97	Dark reddish brown	Steel hard
1970	9.89	0.51	Dark reddish brown	Steel hard
2000	9.80	0.55	Dark reddish brown	Steel hard
2030	9.49	0.74	Dark reddish brown	Steel hard
2050	9.10	0.92	Dark reddish brown	Vitrified
2075	6.18	1.12	Dark reddish brown	Vitrified

POTENTIAL USES: Brick, tile and sewer pipe.

CUMBERLAND COUNTY

Sample Number
CSP-121

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: Near the mouth of Parrsboro River on the western shore of Parrsboro Harbour (Fig. 30).

UTM: 396050 E
5026550 N

GEOLOGICAL UNIT: Pleistocene overlying Riversdale Group

DESCRIPTION: Plastic red clay, overlain by sand, gravel and boulders.

SAMPLE INTERVAL: 1 m chip sample from pit

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Very good workability. Very plastic. Water of plasticity 27.5%. Cracks with rapid drying. Air shrinkage 6.0%.

P.C.E.: 3

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1740	1.94	13.23	Light orange brown	Very hard
1785	2.84	12.30	Light orange brown	Very hard
1825	4.11	10.41	Light orange brown	Very hard
1865	5.22	8.09	Light orange brown	Very hard
1905	5.81	5.44	Light orange brown	Steel hard
1935	7.46	3.36	Reddish brown	Steel hard
1965	8.82	1.50	Reddish brown	Steel hard
1990	9.47	1.10	Reddish brown	Steel hard
2010	10.28	0.97	Reddish brown	Steel hard
2030	9.41	0.76	Reddish brown	Steel hard

POTENTIAL USES: Brick, tile and sewer pipe.

CUMBERLAND COUNTY

Sample Number
CSP-122

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: On the western shore of Parrsboro Harbour near the mouth of the Parrsboro River just north of CSP-121 (Fig. 30).

UTM: 396120 E
5026730 N

GEOLOGICAL UNIT: Clay overlying Riversdale Group, Pennsylvanian age

DESCRIPTION: Plastic red clay

SAMPLE INTERVAL: 1.5 m chip sample from pit

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Very good workability. Very plastic. Water of plasticity 30.7%. Cracks with rapid drying. Air shrinkage 6.2%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1765	3.66	13.20	Pinkish brown	Hard
1815	5.45	10.84	Pinkish brown	Very hard
1855	6.98	7.95	Light reddish brown	Very hard
1895	8.85	4.61	Light reddish brown	Steel hard
1925	10.40	1.35	Light reddish brown	Steel hard
1965	10.99	0.81	Medium reddish brown	Steel hard
1985	11.35	0.74	Medium reddish brown	Steel hard
2010	11.25	0.69	Medium reddish brown	Steel hard
2035	10.59	0.65	Medium reddish brown	Steel hard
2050	8.17	0.58	Medium reddish brown	Steel hard

POTENTIAL USES: Brick

CUMBERLAND COUNTY

Sample Number
CSP-123

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: Along the western shore of the mouth of the Parrsboro River (Fig. 30).

UTM: 396020 E
5026870 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Greyish shale and siltstone

SAMPLE INTERVAL: 3.7 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Calcareous, hard, silty, grey shale with fossils. Fair workability. Good plasticity. Water of plasticity 23.0%. Cracks with rapid drying. Air shrinkage 5.0%

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	4.21	8.32	Moderate reddish brown	Steel hard
04	6.50	4.71	Moderate reddish brown	Steel hard
02	8.27	1.01	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Face brick

CUMBERLAND COUNTY

Sample Number
CSP-124

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: Along the western shore of the mouth of the Parrsboro River (Fig. 30).

UTM: 395920 E
5026930 N

GEOLOGICAL UNIT: Clay overlying the Riversdale Group

DESCRIPTION: Plastic red clay, up to 3 m thick.

SAMPLE INTERVAL: 1.2 m chip sample across clay horizon

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 23.2%. Cracks with rapid drying. Air shrinkage 5.3%.

P.C.E.: 10

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1770	3.55	11.11	Orange brown	Hard
1825	5.03	8.93	Orange brown	Very hard
1885	6.64	6.44	Orange brown	Very hard
1935	8.38	4.66	Orange brown	Steel hard
1975	9.19	1.21	Orange brown	Steel hard
2015	9.81	0.68	Orange brown	Steel hard
2055	9.54	0.56	Medium reddish brown	Steel hard
2090	9.51	0.21	Medium reddish brown	Steel hard
2125	8.66	0.54	Medium reddish brown	Steel hard
2180	8.12	0.78	Medium reddish brown	Steel hard
2205	7.45	0.77	Medium reddish brown	Steel hard
2225	6.78	1.00	Medium reddish brown	Steel hard

POTENTIAL USES: Common brick and face brick.

CUMBERLAND COUNTY

Sample Number
CSP-125

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: At Riverside Beach at the mouth of the Parrsboro River (Fig. 30).

UTM: 397000 E
5027000 N

GEOLOGICAL UNIT: Clay overlying rocks of the Riversdale Group, Pennsylvanian age

DESCRIPTION: Plastic red clay

SAMPLE INTERVAL: 1 m chip sample from cut in pit

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Very good workability. Very plastic. Water of plasticity 29.5%. Cracks with rapid drying. Air shrinkage 6.4%.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1740	2.80	12.68	Orange brown	Very hard
1790	3.88	11.25	Orange brown	Very hard
1835	5.19	9.02	Orange brown	Very hard
1875	6.59	6.51	Orange brown	Very hard
1915	7.79	4.14	Medium reddish brown	Very hard
1945	8.88	1.78	Medium reddish brown	Steel hard
1975	9.02	1.22	Medium reddish brown	Steel hard
2000	9.12	1.11	Medium reddish brown	Steel hard
2020	9.28	1.24	Medium reddish brown	Steel hard
2040	7.81	1.49	Medium reddish brown	Steel hard

POTENTIAL USES: Common brick, face brick, tile and sewer pipe.

CUMBERLAND COUNTY

Sample Number
CSP-126

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: At Riverside Beach at the mouth of the Parrsboro River about 1 km southeast of CSP-125 (Fig. 30).

UTM: 397880 E
5026850 N

GEOLOGICAL UNIT: Clay overlying the Riversdale Group, Pennsylvanian age

DESCRIPTION: Plastic red clay

SAMPLE INTERVAL: 1.2 m grab sample, dug with shovel

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Very good workability. Very plastic. Water of plasticity 31.2%. Cracks with rapid drying. Air shrinkage 6.1%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1765	2.93	12.94	Orange brown	Very hard
1805	3.61	10.50	Orange brown	Very hard
1850	5.85	8.03	Orange brown	Steel hard
1890	7.95	5.83	Orange brown	Steel hard
1920	8.97	2.29	Orange brown	Steel hard
1955	10.27	0.62	Medium reddish brown	Steel hard
1980	10.79	0.52	Medium reddish brown	Steel hard
2005	10.47	0.60	Medium reddish brown	Steel hard
2025	9.75	0.58	Medium reddish brown	Steel hard
2045	8.42	0.53	Medium reddish brown	Steel hard

POTENTIAL USES: Common brick

CUMBERLAND COUNTY

Sample Number
CSP-127

TOPOGRAPHICAL SHEET: 21H/10

LOCATION: At the mouth of Shulie River, on the western bank (Fig. 25).

UTM: 376880 E
5051440 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Red to greyish coloured shale

ATTITUDE OF BEDDING: 51°/8° SE

SAMPLE INTERVAL: 3.7 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Hard gritty shale. Good workability and plasticity. Water of plasticity 21.4%. Cracks with rapid drying. Air shrinkage 4.8%

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.51	6.67	Moderate reddish brown	Steel hard
04	6.91	2.44	Dark moderate reddish brown	Steel hard
02	7.88	0.08	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Face brick

CUMBERLAND COUNTY

Sample Number
CSP-128

TOPOGRAPHICAL SHEET: 21H/10

LOCATION: On the western bank of Shulie River, near its entrance into Chignecto Bay (Fig. 25).

UTM: 376940 E
5051170 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Brown shale-siltstone, 3.7 m in thickness

SAMPLE INTERVAL: 3.7 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 19.6%. Cracks with rapid drying. Air shrinkage 4.2%

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.65	6.73	Moderate reddish brown	Steel hard
04	6.36	2.50	Dark moderate reddish brown	Steel hard
02	7.48	0.05	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Face brick

CUMBERLAND COUNTY

Sample Number
CSP-129

TOPOGRAPHICAL SHEET: 21H/10

LOCATION: Along the western bank of the Shulie River about 0.3 km southeast of CSP-128 (Fig. 25).

UTM: 377120 E
5050960 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Fossiliferous, brown shale and siltstone approximately 4.5 m thick.

SAMPLE INTERVAL: 4.5 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Hard, silty, brown shale. Good workability and plasticity. Water of plasticity 19.4%. Cracks with rapid drying at 85°C. Air shrinkage 4.6%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.15	8.02	Moderate reddish brown	Very hard
04	6.12	3.94	Dark moderate reddish brown	Steel hard
02	7.77	0.57	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Suitable for bricks

CUMBERLAND COUNTY

Sample Number
CSP-130

TOPOGRAPHICAL SHEET: 21H/10

LOCATION: Along the shore of Chignecto Bay approximately 1.6 km southwest of Ragged Point (Fig. 25).

UTM: 381710 E
5056270 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: Gritty brownish-red shale bed

SAMPLE INTERVAL: Grab sample, 4.5 kg

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Hard, silty shale. Good workability and plasticity. Water of plasticity 21.8%. Cracks with rapid drying. Air shrinkage 4.9%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.08	8.54	Moderate reddish brown	Very hard
04	6.24	3.34	Dark moderate reddish brown	Steel hard
02	8.59	0.16	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Face brick

CUMBERLAND COUNTY

Sample Number
CSP-131

TOPOGRAPHICAL SHEET: 21H/10

LOCATION: Along the shore of Chignecto Bay, approximately 2.6 km southwest of Ragged Point (Fig. 25).

UTM: 381040 E
5055830 N

GEOLOGICAL UNIT: Cumberland Group, Pennsylvanian age

DESCRIPTION: 6 m of brownish-red shale

ATTITUDE OF BEDDING: 286°/8° NE

SAMPLE INTERVAL: 6 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 22.4%. Cracks with rapid drying at 85°C. Air shrinkage 5.5%.

P.C.E.: 5

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	4.58	5.26	Moderate reddish brown	Steel hard
04	7.61	0.60	Dark moderate reddish brown	Steel hard
02	8.11	0.03	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Face brick, tile and sewer pipe.

CUMBERLAND COUNTY

Sample Number
CSP-132

TOPOGRAPHICAL SHEET: 21H/08

LOCATION: 7.2 km southwest of Parrsboro, approximately 2.4 km northwest of Black Rock (Fig. 29).

UTM: 388750 E
5026070 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Silty, orange-red clay, thinly bedded

SAMPLE INTERVAL: 61 cm chip sample from pit

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 30.0%. Cracks with rapid drying. Air shrinkage 5.7%.

P.C.E.: 7

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.19	14.56	Moderate reddish brown	Hard
04	6.64	8.71	Light moderate reddish brown	Very hard
02	9.54	3.24	Light moderate reddish brown	Steel hard

POTENTIAL USES: Face brick and sewer pipe.

CUMBERLAND COUNTY

Sample Number
CSP-133

TOPOGRAPHICAL SHEET: 11E/13

LOCATION: Along the southern shore of Baie Verte at Seagrove (Fig. 31).

UTM: 423410 E
5093980 N

GEOLOGICAL UNIT: Pictou Group, Upper Pennsylvanian age

DESCRIPTION: Bright red clay underlying sand and gravel

SAMPLE INTERVAL: 1 m chip sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Good plasticity and workability. Water of plasticity 25.0%. Safe drying. Air shrinkage 4.8%.

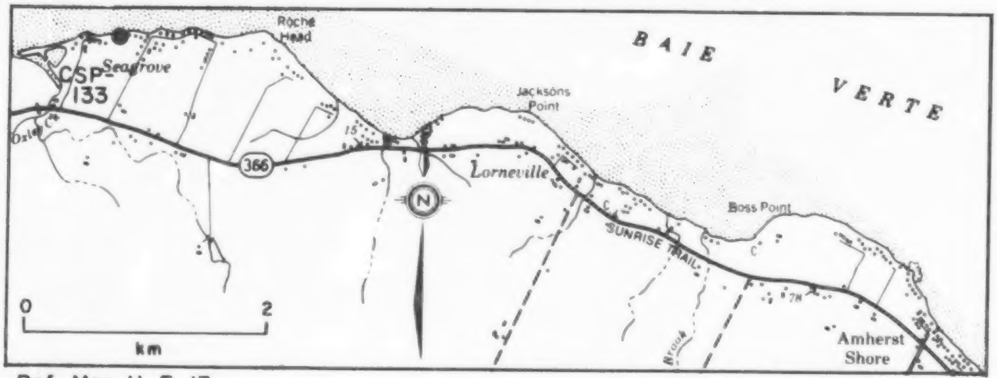
P.C.E.: 3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	4.04	7.39	Moderate reddish brown	Steel hard
04	9.32	0.08	Dark moderate reddish brown	Steel hard
02	0.87	0.09	Dark moderate reddish brown	Vitrified

REMARKS: Some scumming on firing.

POTENTIAL USES: Common brick, hollow tile and drain tile.


Roche Head
BAIE VERTE
Seagrove
CSP-133
Jacksons Point
Lorneville
Boss Point
SUNRISE TRAIL
Amherst Shore
366
15
N
0
2
km
Brook

Ref. Map 11-E-13

Figure 31. Location map for sample CSP-133 (Seagrove)

CUMBERLAND COUNTY

Sample Number
CSP-134

TOPOGRAPHICAL SHEET: 11E/13

LOCATION: In a quarry, 2.4 km southwest of Pugwash, adjacent to Pugwash Basin (Fig. 32).

UTM: 446420 E
5075340 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Brownish-red, pebbly clay overlying shale and limestone.

SAMPLE INTERVAL: 2.4 m chip sample

TYPE OF MATERIAL: Clay

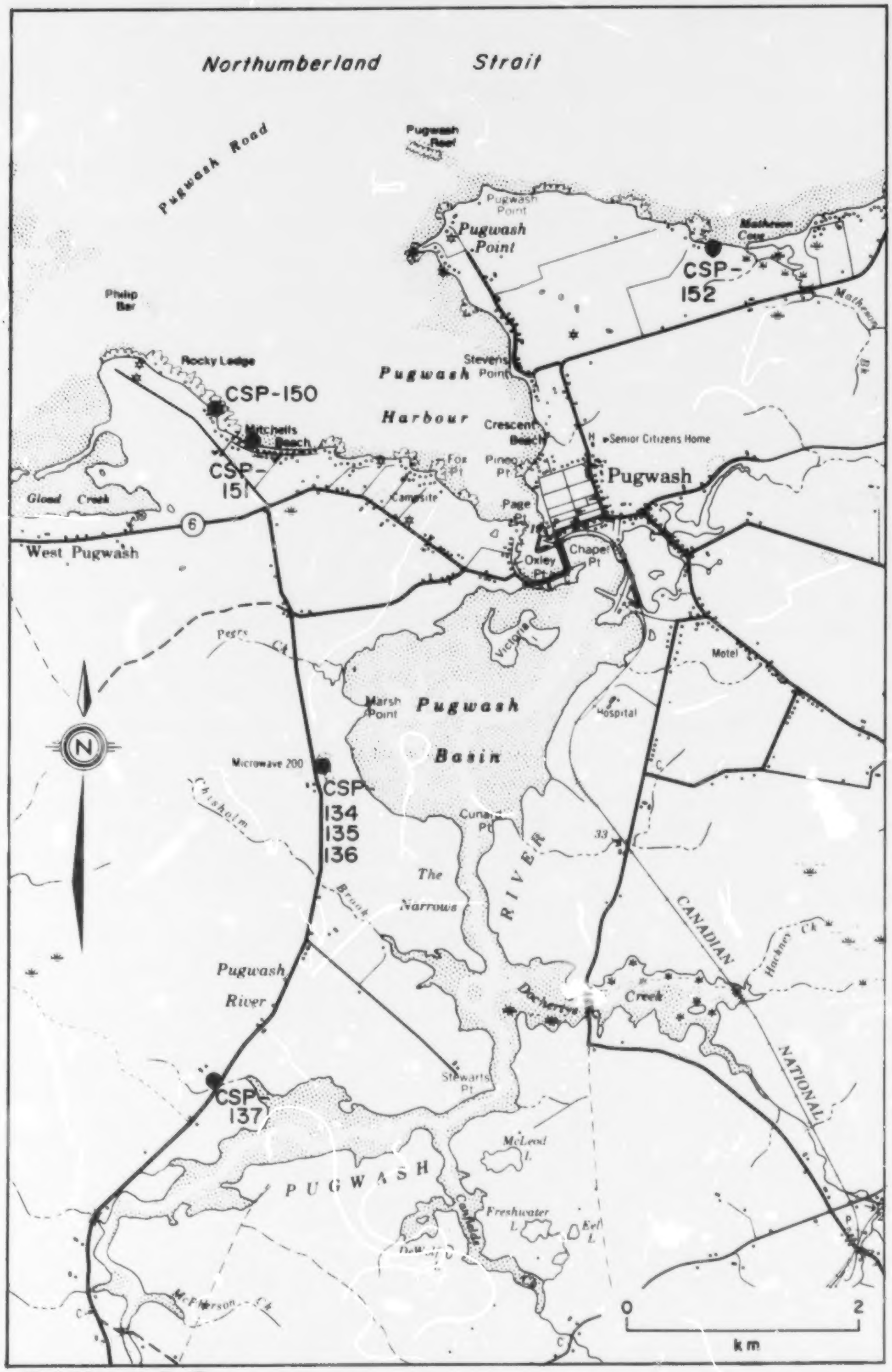
UNFIRED CHARACTERISTICS: Fair workability. Good plasticity. Water of plasticity 20.6%. Cracks with rapid drying. Air shrinkage 4.2%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.40	14.43	Moderate reddish brown	Very hard
04	3.82	6.14	Dark moderate reddish brown	Very hard
02	7.65	1.22	Dark reddish brown	Steel hard

POTENTIAL USES: Suitable for bricks


Northumberland Strait
Pugwash Road
Pugwash Reef
Pugwash Point
Pugwash Point
Matheson Cove
CSP-152
Philip Bar
Rocky Ledge
CSP-150
Mitchells Beach
CSP-151
Pugwash Harbour
Stevens Point
Crescent Beach
Senior Citizens Home
Fox Pt
Pineo Pt
Pugwash
Campsite
Page Pt
Oxley Pt
Chapel Pt
Gload Creek
6
West Pugwash
Peers Ck
Victoria
Motel
Marsh Point
Pugwash Basin
Hospital
Microwave 200
CSP-134 135 136
Chisholm Brook
Cunard Pt
The Narrows
RIVER
33
CANADIAN NATIONAL
Hackney Ck
Pugwash River
Docherty Creek
Stewarts Pt
CSP-137
McLeod L
PUGWASH
Freshwater L
Eel L
McPherson Ck
0
2
km
N

Ref. Map 11-E-13

Figure 32. Location map for samples CSP-134-137, 150-152 (Pugwash)

CUMBERLAND COUNTY

Sample Number
CSP-135

TOPOGRAPHICAL SHEET: 11E/13

LOCATION: In a quarry, 2.4 km southwest of Pugwash, adjacent to Pugwash Basin (Fig. 32).

UTM: 446420 E
5075340 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Grey shale and siltstone

ATTITUDE OF BEDDING: Strike 320°, dip not determined

SAMPLE INTERVAL: 2.7 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Calcareous, hard, silty, grey shale. Very poor workability. Fair plasticity. Water of plasticity 16.0%. Safe drying. Air shrinkage 3.4%.

P.C.E.: 12

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
04	+6.03	48.01	Pale yellowish grey	Soft
02	+5.86	47.58	Yellowish grey	Soft
1	+5.18	45.76	Yellowish grey	Soft

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-136

TOPOGRAPHICAL SHEET: 11E/13

LOCATION: In a quarry, 2.4 km southwest of Pugwash, adjacent to Pugwash Basin (Fig. 32).

UTM: 446420 E
5075340 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Reddish-brown shale overlying gypsum.

SAMPLE INTERVAL: 6 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Fair workability and plasticity. Water of plasticity 19.2%. Cracks with rapid drying. Air shrinkage 4.4%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.22	11.57	Moderate reddish brown	Hard
04	1.93	9.39	Moderate reddish brown	Hard
02	5.74	2.81	Dark moderate reddish brown	Steel hard

REMARKS: Short firing range. A few light specks on surface.

POTENTIAL USES: Suitable for drain tile only.

CUMBERLAND COUNTY

Sample Number
CSP-137

TOPOGRAPHICAL SHEET: 11E/13

LOCATION: Along road to Conns Mills, 5.6 km southwest of Pugwash (Fig 32).

UTM: 445510 E
5072600 N

GEOLOGICAL UNIT: Pictou Group, Pennsylvanian age

DESCRIPTION: Reddish-brown shale

ATTITUDE OF BEDDING: 55°/40° SE

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Calcareous. Fair workability and plasticity. Water of plasticity 22.0%. Safe drying. Air shrinkage 3.5%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.21	12.82	Pale reddish brown	Hard
04	3.72	9.35	Pale reddish brown	Very hard
02	7.76	2.24	Dark moderate reddish brown	Steel hard

REMARKS: A few light specks on firing

POTENTIAL USES: Drain tile and structural tile.

CUMBERLAND COUNTY

Sample Number
CSP-138

TOPOGRAPHICAL SHEET: 11E/12

LOCATION: Along the road from Oxford to Hansford, approximately 457 m from Hansford (Fig. 33).

UTM: 440440 E
5062900 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Grey clay or mudstone

SAMPLE INTERVAL: 2.4 m chip sample

TYPE OF MATERIAL: Clay

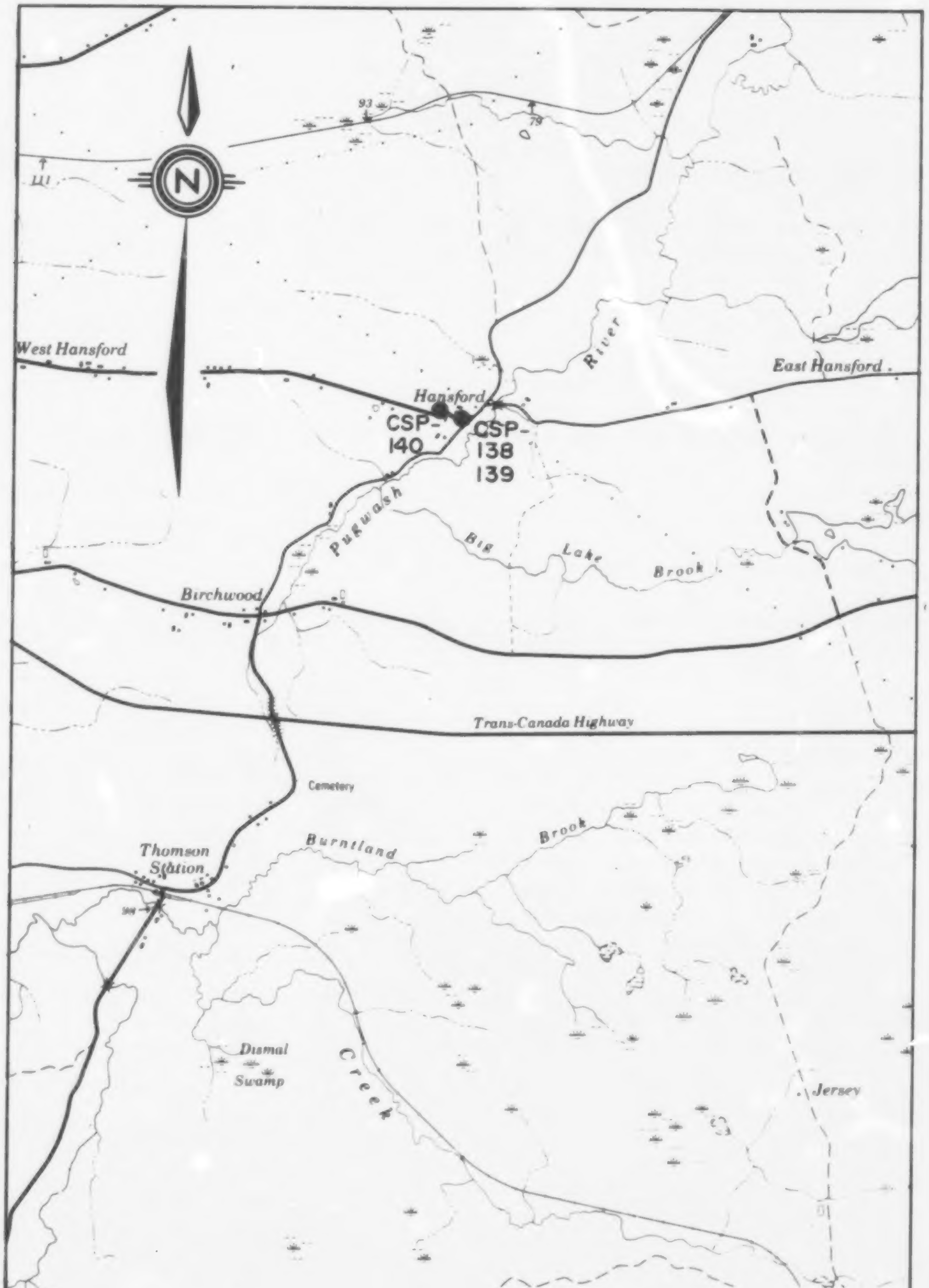
UNFIRED CHARACTERISTICS: Fair workability and plasticity. Water of plasticity 18.2%. Safe drying. Air shrinkage 3.8%.

P.C.E.: 4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
04	0.18	16.88	Pale light brown	Fairly hard
02	0.86	14.94	Pale light brown	Hard
1	0.87	13.91	Pale light brown	Hard

POTENTIAL USES: None


N
93
79
111
West Hansford
River
East Hansford
Hansford
CSP-140
CSP-138
139
Pugwash
Big Lake Brook
Birchwood
Trans-Canada Highway
Cemetery
Burntland Brook
Thomson Station
Dismal Swamp
Creek
Jersey
Brook
0
2
km

Ref. Map 11-E-12

Figure 33. Location map for samples CSP-138-140 (Hansford)

CUMBERLAND COUNTY

Sample Number
CSP-139

TOPOGRAPHICAL SHEET: 11E/12

LOCATION: Along the road from Oxford to Hansford, on the southern side of the road in the same area as sample CSP-138 (Fig. 33).

UTM: 440440 E
5062900 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Brown shale and clay exposed for approximately 122 m along the road.

SAMPLE INTERVAL: 7.6 m chip sample

TYPE OF MATERIAL: Shale and clay

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 24.4%. Cracks with rapid drying. Air shrinkage 5.0%.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
04	2.63	11.63	Pale reddish brown	Hard
02	3.51	7.25	Pale reddish brown	Very hard
01	5.11	5.98	Pale reddish brown	Very hard

POTENTIAL USES: Drain tile.

CUMBERLAND COUNTY

Sample Number
CSP-140

TOPOGRAPHICAL SHEET: 11E/12

LOCATION: West of sample CSP-139, near Hansford, just north of the road to Oxford (Fig. 33).

UTM: 440270 E
5062990 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Light greenish-grey shale and clay

SAMPLE INTERVAL: 2.7 m chip sample

TYPE OF MATERIAL: Shale and clay

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 25.6%. Cracks with rapid drying. Air shrinkage 5.4%.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
04	1.94	12.95	Pale reddish brown	Hard
02	3.71	7.88	Pale reddish brown	Very hard
1	5.11	5.24	Pale reddish brown	Steel hard

POTENTIAL USES: Drain tile, face brick and structural products

CUMBERLAND COUNTY

Sample Number
CSP-143

TOPOGRAPHICAL SHEET: 11E/13

LOCATION: On the eastern side of Route 368 on the Kerrs Mill Road approximately 1.6 km north of Middleboro (Fig. 34).

UTM: 455740 E
5068560 N

GEOLOGICAL UNIT: Pictou Group, Pennsylvanian age

DESCRIPTION: Bed of dark reddish shale and mudstone, 30.5 m thick.

ATTITUDE OF BEDDING: 65°/78° NW

SAMPLE INTERVAL: Grab sample across 30 m

TYPE OF MATERIAL: Shale and mudstone

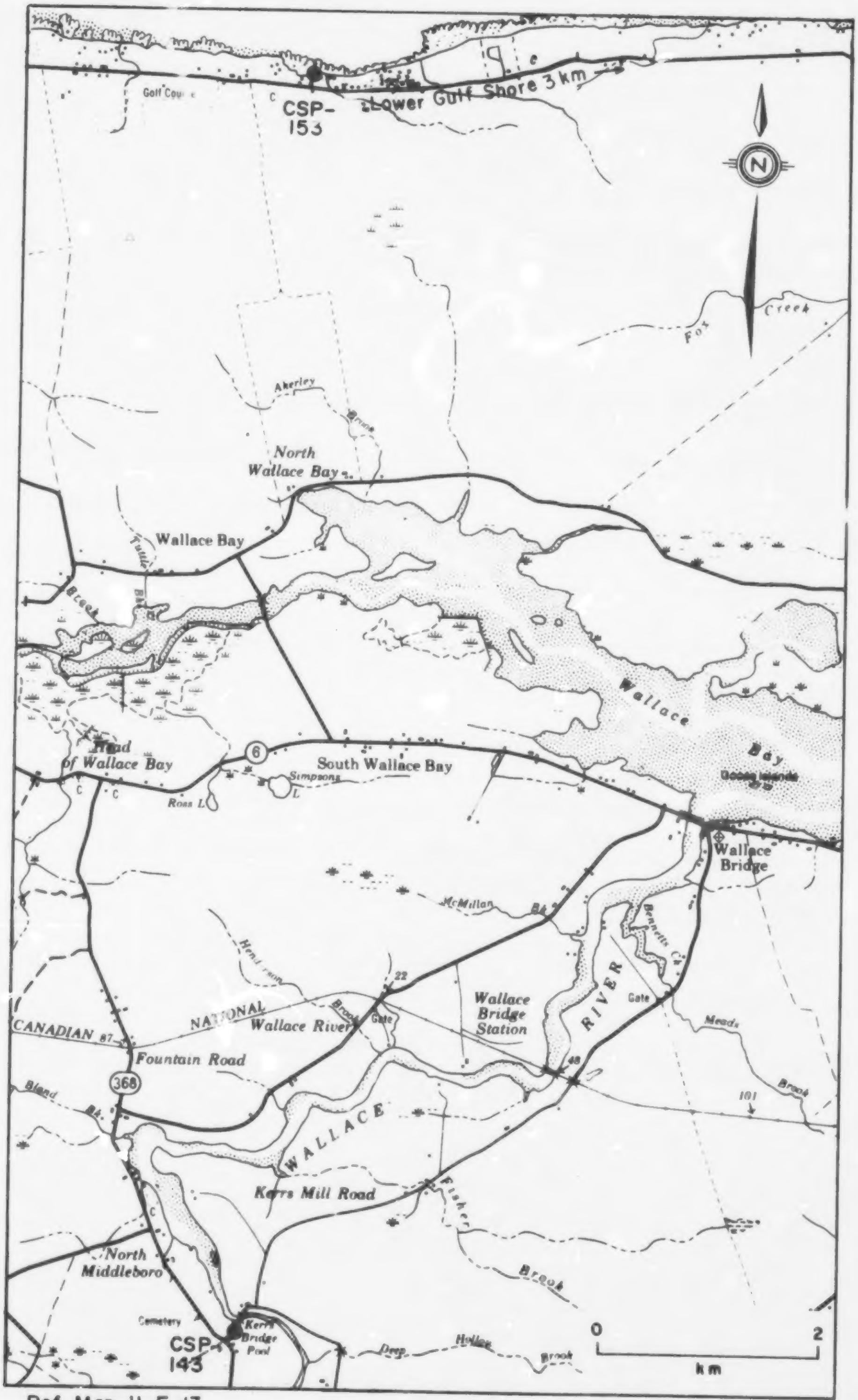
UNFIRED CHARACTERISTICS: Fair workability. Good plasticity. Water of plasticity 20.0%. Safe drying. Air shrinkage 4.0%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.74	10.64	Pale reddish brown	Hard
04	4.01	6.71	Pale reddish brown	Steel hard
02	7.72	0.77	Dark reddish brown	Steel hard

POTENTIAL USES: Drain tile, structural tile and face brick.


CSP-153
Lower Gulf Shore 3 km
Golf Course
N
Fox Creek
Akerley Brook
North Wallace Bay
Wallace Bay
Tuttle Brook
Head of Wallace Bay
6
South Wallace Bay
Simpsons L
Ross L
Wallace Bay
Goose Islands
Wallace Bridge
McMillan Brook
Henderson Brook
Bennetts Cr
22
Wallace Bridge Station
RIVER
Gate
Meadow Brook
CANADIAN NATIONAL
87
Wallace River
Gate
Fountain Road
48
101
368
Bland Brook
84
WALLACE
Kerrs Mill Road
Fisher Brook
North Middleboro
Cemetery
Kerrs Bridge Pool
CSP-143
Deep Hollow Brook
0
2
km

Ref. Map 11-E-13

Figure 34. Location map for samples CSP-143, 153 (North Middleboro)

CUMBERLAND COUNTY

Sample Number
CSP-144

TOPOGRAPHICAL SHEET: 11E/13

LOCATION: Along the western bank of the Shinimicas River approximately 3.2 km southwest of Northport (Fig. 35).

UTM: 430990 E
5084720 N

GEOLOGICAL UNIT: Pictou Group, Pennsylvanian age

DESCRIPTION: Light reddish-brown clay and shale. Bed about 5 m thick and flat lying.

SAMPLE INTERVAL: 5 m chip sample

TYPE OF MATERIAL: Clay and shale

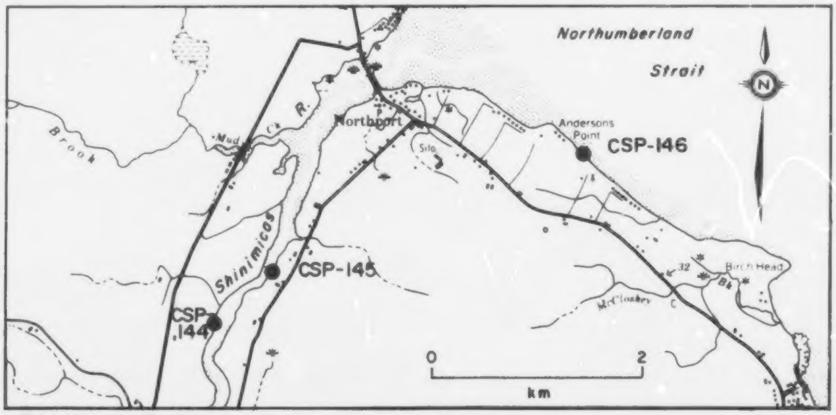
UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 22.0%. Safe drying at 85°C. Air shrinkage 4.2%.

P.C.E.: 2

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.44	9.65	Pale reddish brown	Hard
04	7.13	3.09	Pale reddish brown	Steel hard
02	8.70	0.04	Dark reddish brown	Steel hard

POTENTIAL USES: Drain tile, structural tile, face brick and sewer pipe.


Northumberland
Strait
N
Northport
Andersons Point
CSP-146
Silo
Brook
Mud
Ck
R.
Shinimicas
CSP-145
CSP-144
Birch Head
Bk
32
McCloskey
C
0
2
km

Ref. Map 11-E-13

Figure 35. Location map for samples CSP-144-146 (Shinimicas River)

CUMBERLAND COUNTY

Sample Number
CSP-145

TOPOGRAPHICAL SHEET: 11E/13

LOCATION: Along the eastern bank of Shinimicas River, approximately 2.2 km southwest of Northport (Fig. 35).

UTM: 431570 E
5085190 N

GEOLOGICAL UNIT: Pictou Group, Pennsylvanian age

DESCRIPTION: Light reddish-brown clay-shale

SAMPLE INTERVAL: Chip sample across 3 m

TYPE OF MATERIAL: Clay-shale

UNFIRED CHARACTERISTICS: Good workability. Very plastic. Water of plasticity 27.2%. Safe drying at 85°C. Air shrinkage 4.2%.

P.C.E.: 3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	5.56	7.80	Pale reddish brown	Steel hard
04	10.24	0.41	Pale reddish brown	Steel hard
02	10.58	0.04	Dark reddish brown	Steel hard

REMARKS: Some scumming on firing

POTENTIAL USES: Common brick and drain tile

CUMBERLAND COUNTY

Sample Number
CSP-146

TOPOGRAPHICAL SHEET: 11E/13

LOCATION: Along the shore of Northumberland Strait, 1.6 km southeast of the highway bridge at Northport (Fig. 35).

UTM: 434470 E
5086240 N

GEOLOGICAL UNIT: Probably Pictou Group, Pennsylvanian age

DESCRIPTION: Light reddish-brown clay containing some stones, overlain by sand and gravel.

SAMPLE INTERVAL: Grab sample from 1 m pit dug on shore

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Slightly calcareous, light reddish-brown clay with stones. Good workability. Very plastic. Water of plasticity 22.4%. Cracks with rapid drying. Air shrinkage 4.0%.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.52	11.07	Pale reddish brown	Hard
04	6.09	5.58	Pale reddish brown	Steel hard
02	9.71	0.10	Dark reddish brown	Steel hard

REMARKS: Warped on firing at cone 02

POTENTIAL USES: Drain tile

CUMBERLAND COUNTY

Sample Number
CSP-147

TOPOGRAPHICAL SHEET: 11E/13

LOCATION: Along Northumberland Strait, approximately 4 km northwest of Heather Beach (Fig. 36).

UTM: 437060 E
5082160 N

GEOLOGICAL UNIT: Pictou Group, Pennsylvanian age

DESCRIPTION: Light reddish-brown clay containing a few pebbles.

SAMPLE INTERVAL: Grab sample from pit along shore

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Noncalcareous. Very good workability. Very plastic. Water of plasticity 22.4%. Cracks with rapid drying at 85°C. Air shrinkage 4.8%.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.10	10.50	Pale reddish brown	Hard
04	5.27	5.93	Pale reddish brown	Steel hard
02	7.87	0.16	Dark moderate reddish brown	Steel hard

REMARKS: Light scumming on firing

POTENTIAL USES: Common brick and drain tile

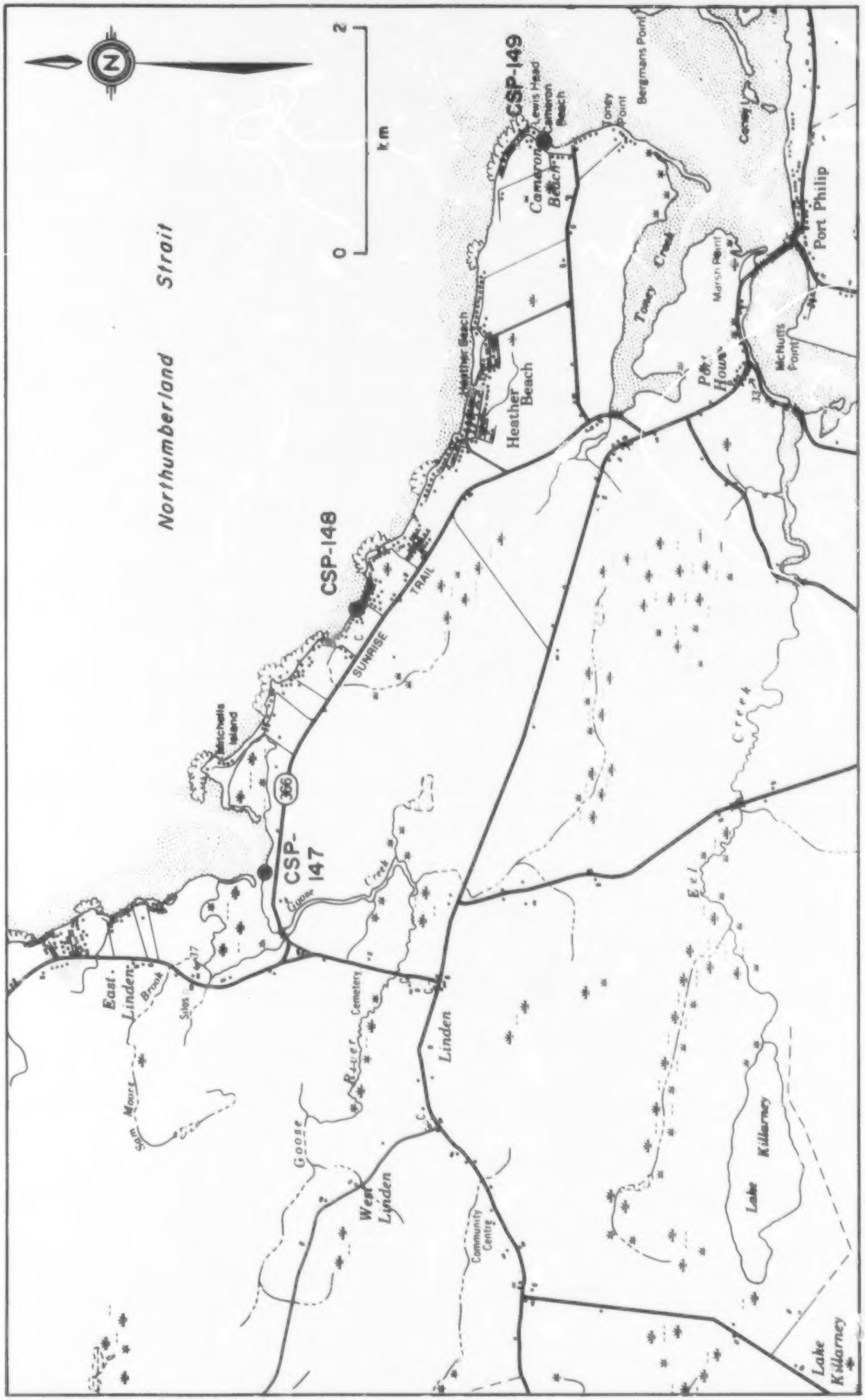

N
0
km
2
Northumberland Strait
CSP-147
CSP-148
CSP-149
Lewis Head
Cameron Beach
Toney Point
Bergmans Point
Heather Beach
Toney Creek
Port Howe
Marsh Point
McNutts Point
Port Philip
Mitchells Island
SUNRISE TRAIL
366
East Linden
Brook
Sam Moore
Goose River
Goose Creek
Cemetery
Linden
West Linden
Community Centre
Eel Creek
Lake Killarney
Ref. Map 11-E-13

Figure 36. Location map for samples CSP-147-149 (Linden)

CUMBERLAND COUNTY

Sample Number
CSP-148

TOPOGRAPHICAL SHEET: 11E/13

LOCATION: Approximately 2 km northwest of Heather Beach, along Northumberland Strait (Fig. 36).

UTM: 439360 E
5081320 N

GEOLOGICAL UNIT: Uncertain, probably Pictou Group, Pennsylvanian age

DESCRIPTION: Light reddish-brown clay with pebbles

SAMPLE INTERVAL: Grab sample from wall of pit

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Very good workability. Very plastic. Water of plasticity 24.0%. Cracks with rapid drying. Air shrinkage 4.4%.

P.C.E.: 3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.14	9.89	Pale reddish brown	Hard
04	7.33	4.57	Pale reddish brown	Steel hard
02	9.25	0.03	Dark moderate reddish brown	Steel hard

REMARKS: Scumming on firing

POTENTIAL USES: Common brick and drain tile

CUMBERLAND COUNTY

Sample Number
CSP-149

TOPOGRAPHICAL SHEET: 11E/13

LOCATION: On the shore of Northumberland Strait at Lewis Head, approximately 4.8 km northwest of Pugwash (Fig. 36).

UTM: 443460 E
5079600 N

GEOLOGICAL UNIT: Uncertain, probably Riversdale Group of Pennsylvanian age

DESCRIPTION: Reddish and brownish clay, containing a few small pebbles, exposed along shore.

SAMPLE INTERVAL: Grab sample, obtained by using a spade

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Calcareous. Very good workability. Very plastic. Water of plasticity 18.0%. Cracks with rapid drying. Air shrinkage 5.3%

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	0.79	11.82	Dark pale reddish brown	Hard
04	1.58	10.31	Pale reddish brown	Hard
02	4.92	4.08	Dark moderate reddish brown	Steel hard

REMARKS: Slight scumming on firing. Short firing range

POTENTIAL USES: Drain tile

CUMBERLAND COUNTY

Sample Number
CSP-150

TOPOGRAPHICAL SHEET: 11E/13

LOCATION: At the entrance to Pugwash Harbour approximately 0.5 km northwest of Mitchells Beach (Fig. 32).

UTM: 445520 E
5078350 N

GEOLOGICAL UNIT: Clay overlying Pictou Group

DESCRIPTION: Light reddish-brown clay containing a few pebbles. Exposure 2.4 m thick.

SAMPLE INTERVAL: Grab sample from 1 m section of clay in pit.

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Very good workability. Very plastic. Water of plasticity 20.0%. Cracks with rapid drying. Air shrinkage 4.9%.

P.C.E.: 3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.05	11.08	Dark pale reddish brown	Hard
04	2.46	8.92	Brown	Very hard
02	6.13	2.64	Dark moderate reddish brown	Steel hard

REMARKS: Slight scumming on firing

POTENTIAL USES: Brick and drain tile

CUMBERLAND COUNTY

Sample Number
CSP-151

TOPOGRAPHICAL SHEET: 11E/13

LOCATION: Approximately 3 km northwest of Pugwash at the entrance to Pugwash Harbour at Mitchells Beach (Fig. 32).

UTM: 445830 E
5078080 N

GEOLOGICAL UNIT: Pictou Group, Pennsylvanian age

DESCRIPTION: Brown shale, 7.6 m in thickness

ATTITUDE OF BEDDING: 75°/10° NW

SAMPLE INTERVAL: Grab sample along strike, 4.5 kg.

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Slightly calcareous. Fair workability. Very plastic Water of plasticity 18.4%. Cracks with rapid drying. Air shrinkage 3.5%.

P.C.E.: 1+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.64	10.60	Dark pale reddish brown	Very hard
04	3.45	6.95	Pale reddish brown	Very hard
02	7.27	0.36	Dark moderate reddish brown	Steel hard

REMARKS: Some scumming on firing.

POTENTIAL USES: Common brick and drain tile.

CUMBERLAND COUNTY

Sample Number
CSP-152

TOPOGRAPHICAL SHEET: 11E/13

LOCATION: Along the shore of Northumberland Strait at Matheson Cove, 2.4 km north of Pugwash (Fig. 32).

UTM: 449810 E
5079760 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Weathered brown clay containing a few stones. Overlain by boulders and gravel

SAMPLE INTERVAL: Grab sample from a 1 m section in a pit

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Very slightly calcareous. Fair workability. Fair plasticity. Water of plasticity 23.6%. Safe drying at 85°C. Air shrinkage 3.1%.

P.C.E.: 3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.21	15.79	Pale reddish brown	Hard
04	3.25	11.72	Pale reddish brown	Hard
02	8.97	0.89	Dark moderate reddish brown	Steel hard

REMARKS: Some scumming on firing.

POTENTIAL USES: None

CUMBERLAND COUNTY

Sample Number
CSP-153

TOPOGRAPHICAL SHEET: 11E/13

LOCATION: Along the shore of Northumberland Strait near Lower Gulf Shore (Fig. 34).

UTM: 456380 E
5079900 N

GEOLOGICAL UNIT: Pictou Group, Pennsylvanian age

DESCRIPTION: Hard, silty reddish-brown shale, about 3 m thick.

ATTITUDE OF BEDDING: 102°/29° NE

SAMPLE INTERVAL: Chip sample across 3 m

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Fair workability. Good plasticity. Water of plasticity 20.0%. Safe drying. Air shrinkage 4.2%.

P.C.E.: 2

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.48	10.20	Pale reddish brown	Very hard
04	4.02	6.09	Pale reddish brown	Very hard
02	8.18	0.40	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Drain tile, face brick and sewer pipe.

CUMBERLAND COUNTY

Sample Number
CSP-154

TOPOGRAPHICAL SHEET: 11E/14

LOCATION: On the peninsula between Fox and Wallace Harbours near Dougherty Point (Fig. 37).

UTM: 466420 E
5075640 N

GEOLOGICAL UNIT: Uncertain, probably Pleistocene age

DESCRIPTION: Light reddish-brown clay with pebbles.

SAMPLE INTERVAL: 1 m chip sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Good workability and plasticity. Water of plasticity 18.4%. Safe drying. Air shrinkage 5.3%

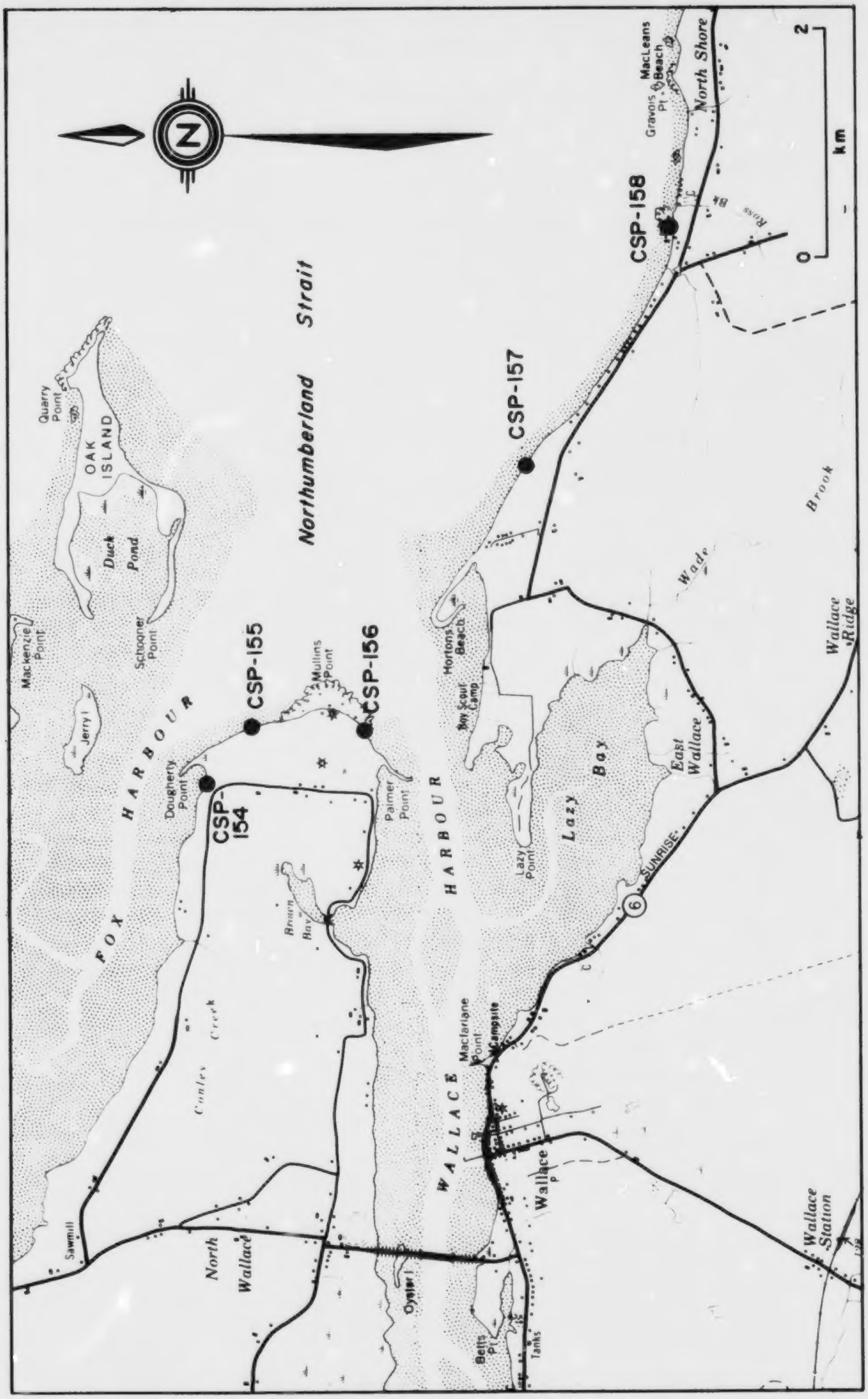
P.C.E.: 4-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	0.62	11.40	Pale reddish brown	Hard
04	1.23	10.49	Pale reddish brown	Hard
02	4.40	3.94	Dark moderate reddish brown	Steel hard

REMARKS: Some scumming on firing

POTENTIAL USES: Common brick and drain tile.


N
Northumberland Strait
Quarry Point
OAK ISLAND
Duck Pond
Schooner Point
Mackenzie Point
Jerry I
FOX HARBOUR
Dougherty Point
CSP-154
CSP-155
Mullins Point
CSP-156
Palmer Point
Brown Bay
Conleys Creek
Sawmill
North Wallace
Oyster I
Betts Pt
Tanks
WALLACE HARBOUR
Wallace
Macfarlane Point
Campsite
Lazy Point
Lazy Bay
Boy Scout Camp
Hortons Beach
East Wallace
SUNRISE
6
Wallace Ridge
Wallace Station
Wade Brook
CSP-157
CSP-158
Ross
Gravois Pt
MacLeans Beach
North Shore
0
1
2
km

Ref. Map 11-E-14

Figure 37. Location map for samples CSP-154-158 (Wallace Harbour)

CUMBERLAND COUNTY

Sample Number
CSP-155

TOPOGRAPHICAL SHEET: 11E/14

LOCATION: Along the shore between Fox Harbour and Wallace Harbour on a small peninsula approximately 0.6 km southeast of CSP-154 (Fig. 37).

UTM: 466870 E
5075290 N

GEOLOGICAL UNIT: Uncertain, Pleistocene or an altered Riversdale Group

DESCRIPTION: Reddish-brown clay containing pebbles.

SAMPLE INTERVAL: Grab sample from 1 m section of clay

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Good workability. Fair plasticity. Water of plasticity 19.0%. Cracks with rapid drying.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	0.44	10.87	Pale reddish brown	Hard
04	1.40	9.62	Pale reddish brown	Hard
02	4.18	3.75	Dark moderate reddish brown	Steel hard

REMARKS: Some scumming on firing

POTENTIAL USES: Drain tile

CUMBERLAND COUNTY

Sample Number
CSP-156

TOPOGRAPHICAL SHEET: 11E/14

LOCATION: On the peninsula between Fox and Wallace Harbours at Mullins Point (Fig. 37).

UTM: 466870 E
5074280 N

GEOLOGICAL UNIT: Pictou Group, Pennsylvanian age

DESCRIPTION: Shale, 3 m in thickness

SAMPLE INTERVAL: 3 m chip sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Calcareous. Fair workability and plasticity. Water of plasticity 19.0%. Cracks with rapid drying. Air shrinkage 2.4%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	0.69	13.23	Pale reddish brown	Hard
04	2.39	10.42	Pale reddish brown	Hard
02	5.39	4.09	Dark moderate reddish brown	Steel hard

REMARKS: Some scumming on firing.

POTENTIAL USES: Drain tile

CUMBERLAND COUNTY

Sample Number
CSP-157

TOPOGRAPHICAL SHEET: 11E/14

LOCATION: Along the shore of Northumberland Strait, about 4 km northwest of Malagash (Fig. 37).

UTM: 469210 E
5072810 N

GEOLOGICAL UNIT: Pictou Group, Pennsylvanian age

DESCRIPTION: Reddish-brown plastic clay

SAMPLE INTERVAL: Grab sample from 61 cm section in pit.

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Good workability. Fair plasticity. Water of plasticity 18.0%. Cracks with rapid drying. Air shrinkage 3.9%.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.04	10.47	Pale reddish brown	Hard
04	1.39	9.11	Pale reddish brown	Very hard
02	4.35	3.39	Dark moderate reddish brown	Steel hard

REMARKS: Some scumming on firing.

POTENTIAL USES: Common brick and drain tile

CUMBERLAND COUNTY

Sample Number
CSP-158

TOPOGRAPHICAL SHEET: 11E/14

LOCATION: Exposure on the shore of the Northumberland Strait, 2.4 km north of Malagash (Fig. 37).

UTM: 471210 E
5071600 N

GEOLOGICAL UNIT: Pictou Group, Pennsylvanian age

DESCRIPTION: Brownish-red shale, exposure about 6 m thick.

ATTITUDE OF BEDDING: 077°/88° NW

SAMPLE INTERVAL: Grab sample along strike

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Fair workability. Good plasticity. Water of plasticity 16.8%. Cracks with rapid drying at 85°C. Air shrinkage 4.4%.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.05	9.11	Moderate reddish brown	Hard
04	2.80	6.36	Moderate reddish brown	Very hard
02	6.05	1.60	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Face brick, drain tile, structural tile and sewer pipe

DIGBY COUNTY

Sample Number
CP-61

TOPOGRAPHICAL SHEET: 21B/08

LOCATION: In the ditch on the southern side of the road going from Little River to Little River Cove, approximately 607 m east of Highway 217 (Fig. 38).

UTM: 727710 E
4924980 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Mottled grey and reddish-brown clay containing abundant iron carbonate and organic material. The outcrop extends for 9 m along the ditch and has a thickness in excess of 25 cm.

SAMPLE INTERVAL: 25 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Moderate yellowish-brown, noncalcareous clay. Fair workability. Fairly plastic. Water of plasticity 28.0%. Safe drying. Air shrinkage 6.5%. Modulus of rupture 332 p.s.i. Benzidine test negative.

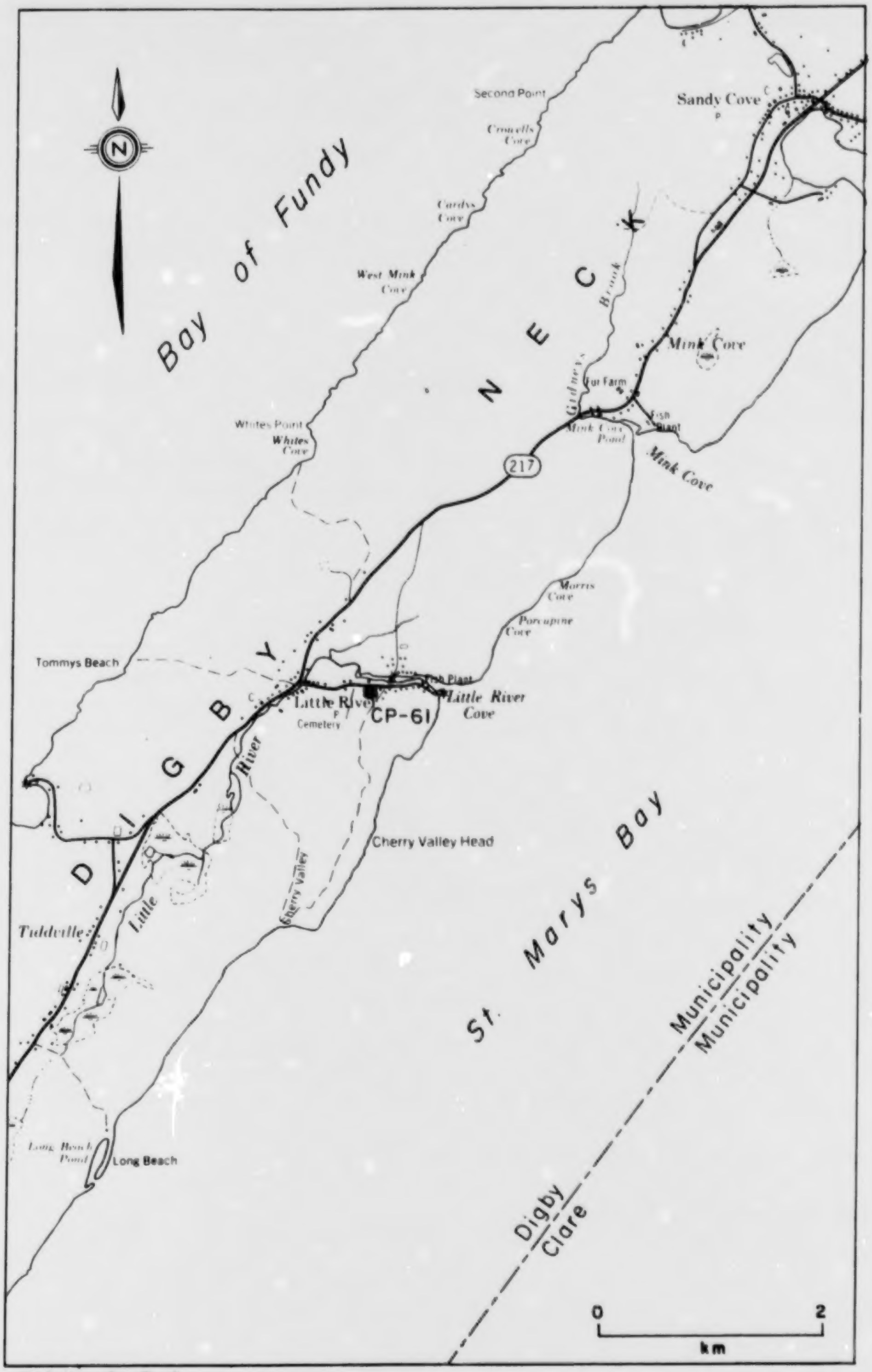
P.C.E.: 3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.23	12.49	Light moderate reddish brown	Hard
04	8.00	5.64	Moderate reddish brown	Steel hard
02	11.55	0.06	Dark reddish brown	Steel hard

REMARKS: Warped in firing at cone 02

POTENTIAL USES: Brick products


Bay of Fundy
DIGBY NECK
St. Marys Bay
Second Point
Crowells Cove
Cardys Cove
West Mink Cove
Whites Point
Whites Cove
Tommys Beach
Sandy Cove
Mink Cove
Fur Farm
Fish Plant
Mink Cove Pond
217
Gidneys Brook
Morris Cove
Porcupine Cove
Fish Plant
Little River
Little River Cove
CP-61
Cemetery
Little River
Cherry Valley Head
Cherry Valley
Tiddville
Long Beach Pond
Long Beach
Municipality
Municipality
Digby
Clare
0
2
km
N

Ref. Map 21-B-8

Figure 38. Location map for sample CP-61 (Digby Neck)

DIGBY COUNTY

Sample Number
CP-62

TOPOGRAPHICAL SHEET: 21A/05

LOCATION: Gilberts Cove. On the road to Gilberts Point, 61 m east of the bridge which crosses Kenney Brook (Fig. 39).

UTM: 265390 E
4929780 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Greyish-brown clay with very prominent iron carbonate stains and minor organic material. Large stones are scattered throughout the outcrop. Layering is very pronounced with individual beds ranging in thickness from 2-30 cm. The outcrop extends for 76 m along the southern side of Gilberts Cove with a thickness of 30 m.

ATTITUDE OF BEDDING: Horizontal

SAMPLE INTERVAL: Channel sample across lower 1.2 m of thickness

TYPE OF MATERIAL: Clay

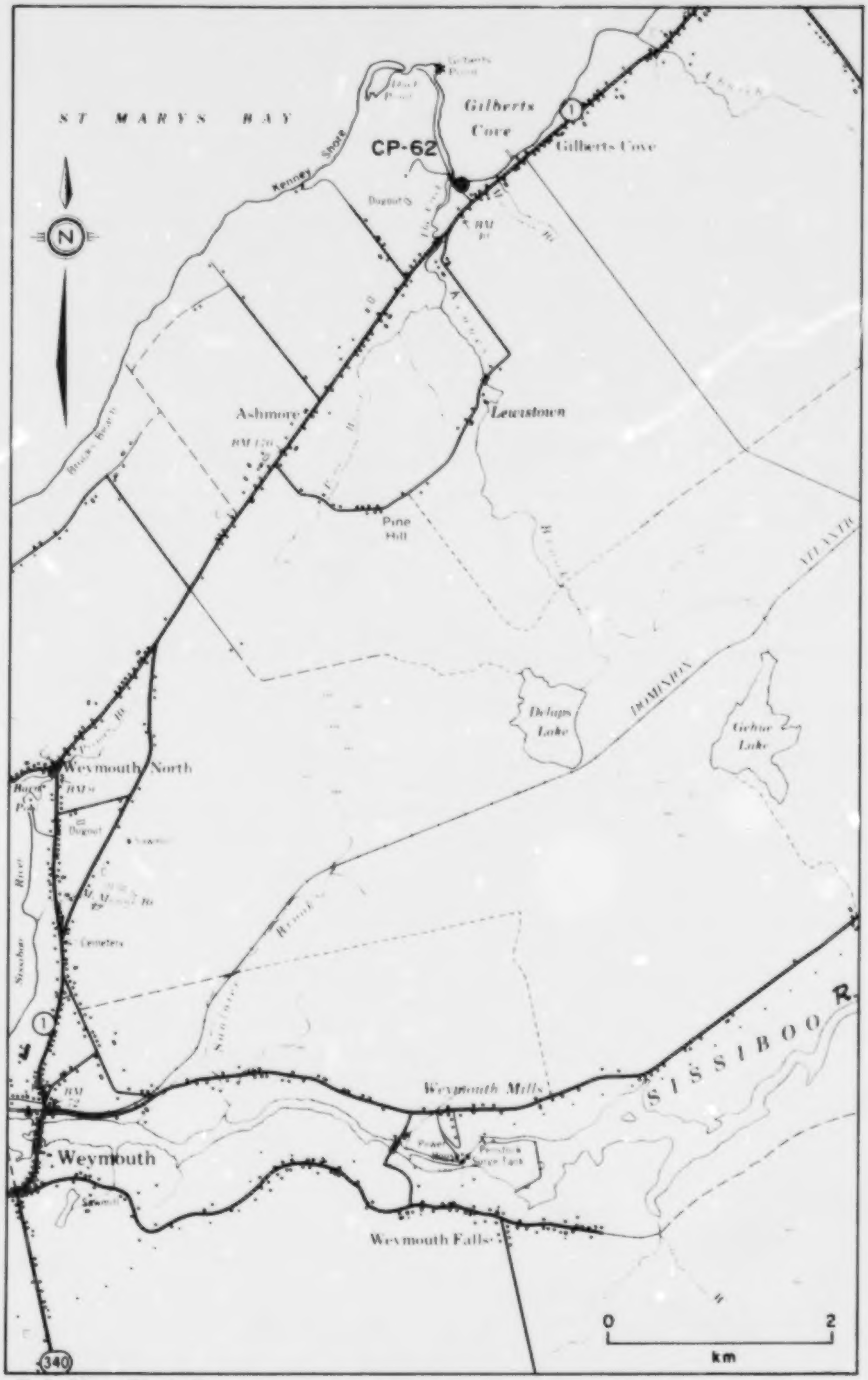
UNFIRED CHARACTERISTICS: Moderate yellowish-brown, noncalcareous clay. Poor workability. Poorly plastic. Water of plasticity 23.2%. Safe drying. Air shrinkage 5.0%. Modulus of rupture 156 p.s.i.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
04	1.76	13.12	Moderate reddish orange	Soft
02	5.62	6.97	Dark moderate reddish brown	Hard
1	6.47	4.41	Dark moderate reddish brown	Steel hard

POTENTIAL USES: None


ST MARYS BAY
Gilberts Point
Gilberts Cove
CP-62
Gilberts Cove
Kenney Shore
Dugout
N
Ashmore
Lewistown
Pine Hill
Delaps Lake
Gehue Lake
DOMINION
ATLANTIC
Weymouth North
Dugout
Cemetery
Sissiboo River
1
SISSIBOO R.
Weymouth Mills
Weymouth
Weymouth Falls
340
0
2
km

Ref. Map 21-A-5

Figure 39. Location map for sample CP-62 (Gilberts Cove)

HALIFAX COUNTY

Sample Number
CP-35

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: Shubenacadie River, approximately 60 m south of the bridge crossing the River at Milford Station. The outcrop is about 30 m from shore, on the eastern bank of the River (Fig. 40).

UTM: 465800 E
4987230 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Reddish-brown shale, thinly bedded and friable having a thickness of about 5.5 m. Outcrop occurs sporadically along the Shubenacadie River for about 46 m.

ATTITUDE OF BEDDING: 315°/17° NE

SAMPLE INTERVAL: Channel sample aacross the lower 1.5 m of shale

TYPE OF MATERIAL: Shale

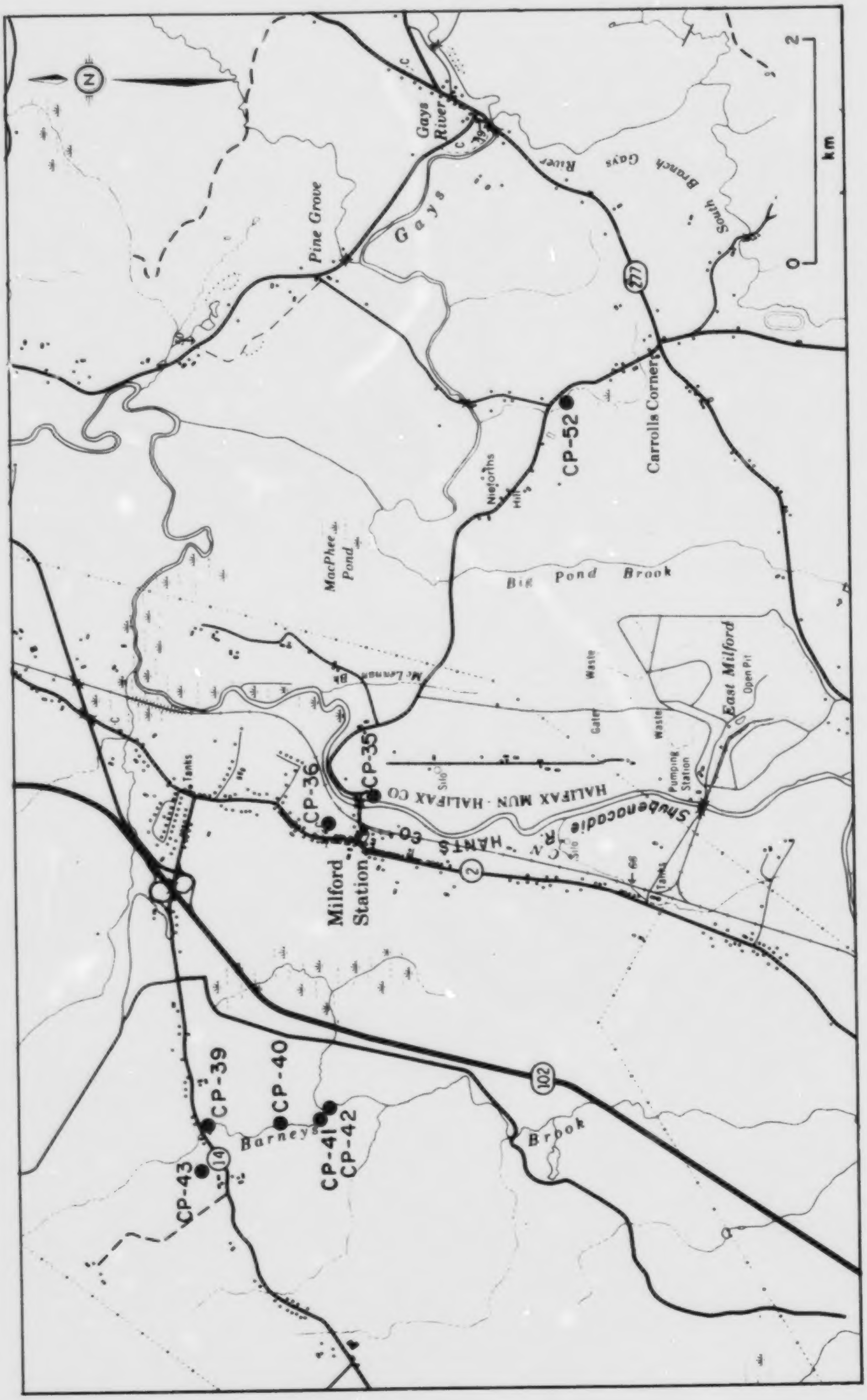
UNFIRED CHARACTERISTICS: Moderate red, calcareous shale. Poor workability. Poorly plastic. Water of plasticity 16.8%. Safe drying. Air shrinkage 2.6%. Benzidine test negative.

P.C.E.: 6

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	2.05	9.07	Moderate reddish brown	Hard
1	2.05	8.44	Moderate reddish brown	Very hard
3	2.24	7.16	Moderate reddish brown	Very hard to steel hard

POTENTIAL USES: None


N
2
0
km
Gays River
Gays
River
Branch Gays
South
Pine Grove
277
CP-52
Carrolls Corner
Nieforths Hill
MacPhee Pond
Big Pond Brook
McLennan Br
Waste
Gate
Waste
East Milford
Open Pit
Pumping Station
CP-35
CP-36
Silo
Tanks
HALIFAX MUN · HALIFAX CO
HANTS CO
Shubenacadie R.
C N
Milford Station
2
CP-39
CP-40
CP-41
CP-42
CP-43
14
Barneys
Brook
102

Ref. Map II-E-3   Figure 40. Location map for samples CP-35, 36, 39-43, 52 (Milford Station)

HALIFAX COUNTY

Sample Number
CP-52

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: Occurrence approximately 960 m northwest of Carrolls Corner, on the western side of the road going to Milford Station (Fig. 40).

UTM: 469280 E
4985500 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Two distinguishable clay horizons were exposed by digging with a shovel in the ditch. The top layer is medium grey clay, 15 cm thick, containing iron carbonates. It is underlain by mottled grey to brown clay which grades into reddish-brown clay after 80 cm of thickness. Both horizons contain some organic material.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Vertical channel sample from the top 35 cm

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Light brown, noncalcareous clay containing stones. Very good workability. Very plastic. Water of plasticity 24.8%. Safe drying. Air shrinkage 7.4%. Modulus of rupture 296 p.s.i. Benzidine test negative.

P.C.E.: 8

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.15	8.30	Moderate reddish orange	Hard
04	4.67	6.27	Moderate reddish brown	Steel hard
02	7.28	2.02	Moderate reddish brown	Steel hard

REMARKS: The clay seems to be quite extensive. A further investigation of the occurrence may be warranted.

POTENTIAL USES: Earthenware, artware and structural products.

HANTS COUNTY

Sample Number
CP-30

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: L. E. Shaw clay pit located 480 m south of Shubenacadie on the eastern side of Highway 2 going from Shubenacadie to Milford (Fig. 41).

UTM: 467650 E
4991940 N

GEOLOGICAL UNIT: Clay, Early Cretaceous age

DESCRIPTION: Varicoloured (light grey-greenish grey-dark grey) clay containing pyrite. Overlain by a layer of carbonaceous material.

SAMPLE INTERVAL: Grab sample from stockpile

TYPE OF MATERIAL: Clay

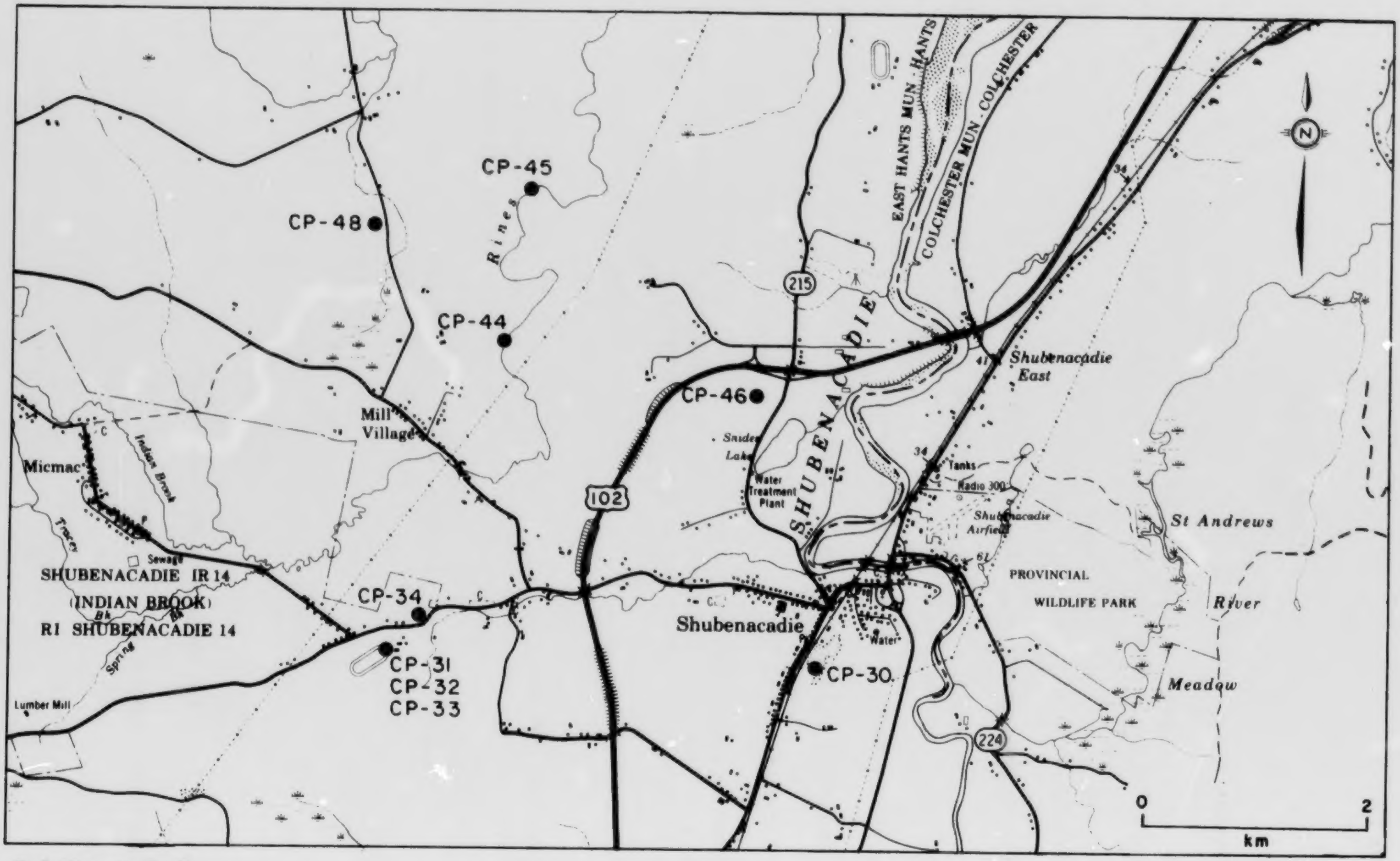
UNFIRED CHARACTERISTICS: Brownish-grey, noncalcareous clay. Very good workability. Very plastic. Water of plasticity 27.2%. Safe drying. Air shrinkage 5.7%. Modulus of rupture 212 p.s.i. Benzidine test negative.

P.C.E.: 29

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1785	2.29	21.95	Off white	Hard
1850	2.97	21.51	Off white	Hard
1920	3.59	19.65	Cream	Hard
1980	4.27	18.22	Cream	Hard
2040	4.40	18.05	Cream	Very hard
2092	4.59	16.50	Cream	Very hard
2140	5.06	15.27	Cream	Very hard
2185	5.53	13.34	Cream	Steel hard
2225	5.64	11.80	Cream	Steel hard
2255	5.35	9.09	Cream	Steel hard
2275	6.63	8.68	Cream	Steel hard
2298	7.04	6.55	Cream	Steel hard

POTENTIAL USES: This material is presently being quarried for use as medium duty refractories


CP-45
CP-48
CP-44
CP-46
CP-34
CP-31
CP-32
CP-33
CP-30
Rines
Mill Village
Micmac
Indian Brook
Tracey
Sewage
SHUBENACADIE IR 14
(INDIAN BROOK)
RI SHUBENACADIE 14
Bk
Spring
Lumber Mill
102
215
224
EAST HANTS MUN. HANTS
COLCHESTER MUN. COLCHESTER
SHUBENACADIE
Shubenacadie East
Snide Lake
Water Treatment Plant
Tanks
Radio 300
Shubenacadie Airfield
Shubenacadie
Water
34
41
61
PROVINCIAL
WILDLIFE PARK
St Andrews
River
Meadow
N
0
2
km

Ref. Map II-E-3

Figure 41. Location map for samples CP-30-34, 44-46, 48 (Shubenacadie)

HANTS COUNTY

Sample Number
CP-31

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: On the property of Dr. Ross Ainslie, approximately 4 km west of Shubenacadie, on the southern side of the road to Mill Village (Fig. 41).

UTM: 463930 E
4992060 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: 30 cm of mottled reddish-brown clay grading down into gravelly clay.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Vertical 30 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Greyish-orange, noncalcareous clay containing some stones. Very good workability. Highly plastic. Water of plasticity 25.6%. Safe drying. Air shrinkage 6.0%. Modulus of rupture 215 p.s.i. Benzidine test negative.

P.C.E.: 4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
05	3.38	10.62	Moderate reddish orange	Soft to hard
04	5.53	7.36	Dark moderate reddish orange	Hard
02	8.66	3.31	Moderate reddish brown	Steel hard

REMARKS: Appears to cover an extensive area

POTENTIAL USES: Earthenware and artware

HANTS COUNTY

Sample Number
CP-32

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: On the property of Dr. Ross Ainslie approximately 4 km west of Shubenacadie, on the southern side of the road to Mill Village (Fig 41).

UTM: 463930 E
4992060 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Mottled reddish-grey clay exhibiting iron carbonate stains. The clay unit is 91 cm thick. Weathered surfaces are commonly light grey to brown in colour.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Channel sample from the top 30 cm of clay

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Grey and brown (moderate yellowish brown after grinding and mixing), noncalcareous clay. Very good workability. Very plastic. Water of plasticity 37.6%. Good extrudability. Safe drying. Air shrinkage 7.4%. Modulus of rupture 306 p.s.i. Benzidine test negative.

P.C.E.: 5-6 (bloated)

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
05	7.83	1.73	Moderate reddish brown	Steel hard
04	10.62	0.16	Moderate reddish brown	Steel hard
02	6.83	0.04	Moderate reddish brown	Steel hard

POTENTIAL USES: Earthenware, artware and structural products.

HANTS COUNTY

Sample Number
CP-33

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: On the property of Dr. Ross Ainslie, approximately 4 km west of Shubenacadie, on the southern side of the road to Mill Village (Fig. 41).

UTM: 463930 E
4992060 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: There are two distinguishable horizons of clay at this location. Outcropping at the surface is a light grey clay with a thickness of 7 cm. It overlies 45 cm of mottled reddish-brown clay.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Channel sample across top 30 cm of thickness

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Greyish-orange, noncalcareous, soily clay. Good workability. Poorly plastic. Water of plasticity 28.0%. Safe drying. Air shrinkage 5.9%. Modulus of rupture 178 p.s.i. Benzidine test negative.

P.C.E.: 13

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	5.65	8.82	Dark moderate reddish orange	Hard
1	7.09	6.80	Moderate reddish brown	Hard
6	10.27	1.91	Dark reddish brown	Steel hard

POTENTIAL USES: None

HANTS COUNTY

Sample Number
CP-34

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: Approximately 3.2 km west of Shubenacadie on the northern side of the road to Mill Village (Fig. 41).

UTM: 464220 E
4992340 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Light to medium grey clay. The length of the exposure is 9 m with a width of 90 cm and thickness in excess of 30 cm.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: 30 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Pale yellowish-brown, noncalcareous, soily clay. Fair workability. Poorly plastic. Water of plasticity 22.4%. Safe drying. Air shrinkage 5.3%. Modulus of rupture 142 p.s.i. Benzidine test faint positive.

P.C.E.: 6+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
05	3.00	8.52	Moderate reddish orange	Hard
04	4.04	7.09	Moderate reddish orange	Hard to very hard
02	5.64	4.65	Moderate reddish brown	Steel hard

POTENTIAL USES: Common and face brick

HANTS COUNTY

Sample Number
CP-36

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: L. E. Shaw Ltd. quarry, about 30 m east of the Milford Station school (Fig. 40).

UTM: 465580 E
4987610 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Reddish-brown shale which becomes greyish-blue when weathered. Massive to thinly bedded, with bedding changing abruptly laterally. The shale is friable in place and has an exposed thickness of 6 m.

ATTITUDE OF BEDDING: 250°/10° NE

SAMPLE INTERVAL: Channel sample across lower 1.8 m of thickness

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Dark reddish-brown, highly calcareous shale. Very poor workability. Poorly plastic. Water of plasticity 20.4%. Safe drying. Air shrinkage 3.8. Benzidine test negative.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	2.85	8.60	Moderate reddish brown	Very hard
1	3.83	7.48	Moderate reddish brown	Very hard
3	4.85	4.46	Moderate reddish brown	Very hard

POTENTIAL USES: Not suitable if used by itself. At present it is being used along with red plastic clay from Lantz in the production of brick at L. E. Shaw Ltd. in Lantz.

HANTS COUNTY

Sample Number
CP-37

TOPOGRAPHICAL SHEET: 11E/04

LOCATION: Grumbley Brook, approximately 1.6 km west of MacPhees Corner. The exposure is in the Brook, 380 m south of the bridge, which is on the road from MacPhees Corner to Roulston Corner across Grumbley Brook, (Fig. 42).

UTM: 456230 E
4995530 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: There are two distinguishable clay horizons, a 10 cm layer of brown clay overlying grey clay of the same thickness. The outcrop extends for 3 m along Grumbley Brook.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Channel sample across both clay horizons

TYPE OF MATERIAL: Clay

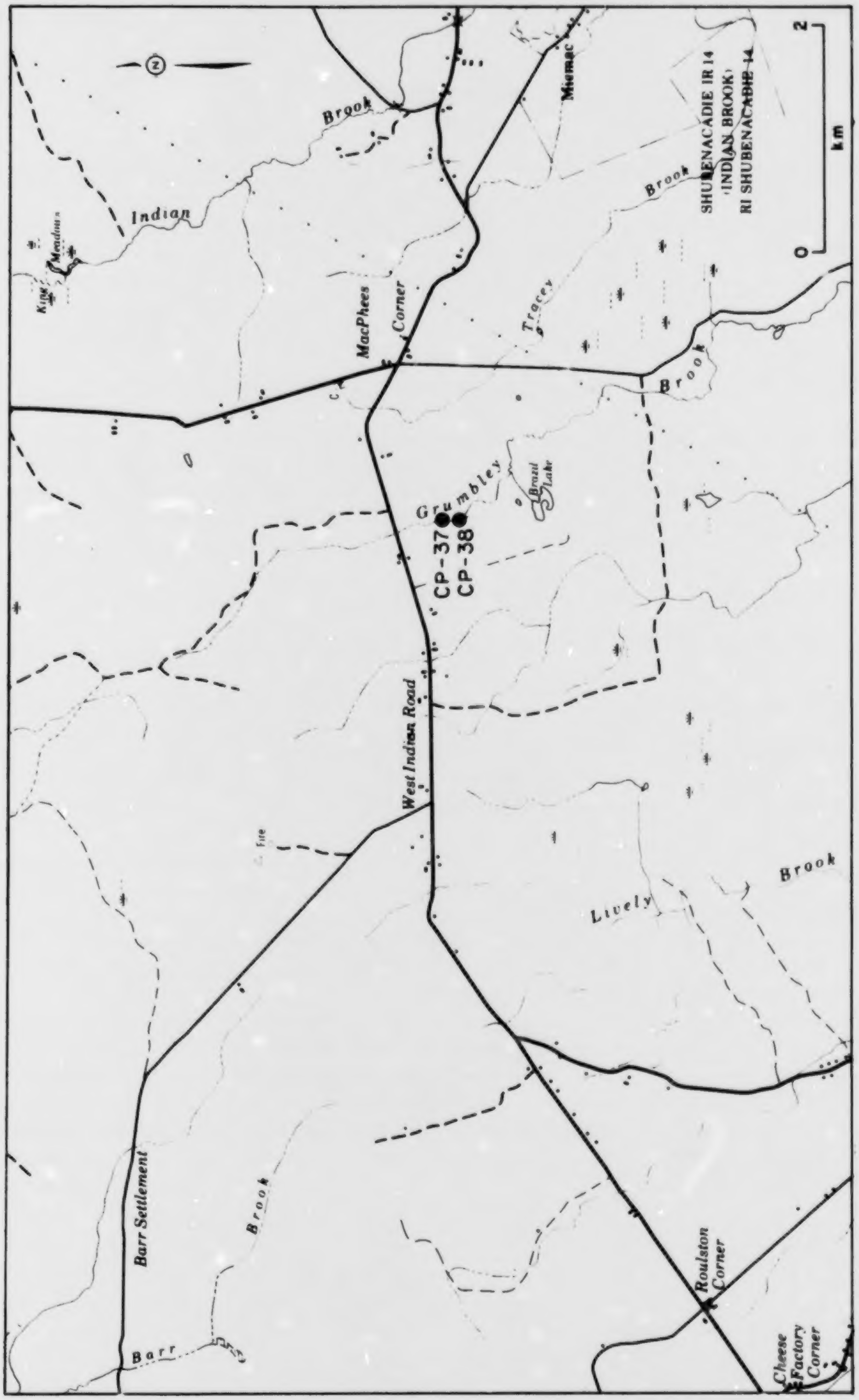
UNFIRED CHARACTERISTICS: Light brown, noncalcareous, silty clay. Very poor workability. Poorly plastic. Water of plasticity 28.0%. Safe drying. Air shrinkage 4.0%. Benzidine test negative.

P.C.E.: 13

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	2.60	16.85	Pale reddish brown	Soft
1	1.74	17.42	Pale reddish brown	Soft
6	4.84	12.32	Pale reddish brown	Hard

POTENTIAL USES: None


Brook
Indian
King Meadows
Micmac
Brook
SHUBENACADIE IR 14
(INDIAN BROOK)
RI SHUBENACADIE 14
0
2
km
MacPhees Corner
Tracey
Brook
Grumbley
Brazil Lake
CP-37
CP-38
West Indian Road
Lively
Brook
Barr Settlement
Brook
Barr
Roulston Corner
Cheese Factory Corner

Ref. Map 11-E-4

Figure 42. Location map for samples CP-37, 38 (MacPhees Corner)

HANTS COUNTY

Sample Number
CP-38

TOPOGRAPHICAL SHEET: 11E/04

LOCATION: Grumbley Brook, approximately 1.6 km west of MacPhees Corner. The exposure, along the Brook, is 508 m south of the bridge, which is on the road from MacPhees Corner to Roulston Corner across Grumbley Brook (Fig. 42).

UTM: 456200 E
4995400 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: A layer of reddish-brown clay overlying 30 cm of bluish-grey clay showing iron carbonate stains.

SAMPLE INTERVAL: Channel sample across 30 cm of bluish-grey clay.

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Light grey, highly calcareous clay containing minor silty material. Fair workability. Fairly plastic. Water of plasticity 18.4%. Safe drying. Air shrinkage 5.1%. Modulus of rupture 231 p.s.i. Benzidine test faint positive.

P.C.E.: 7-8

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	1.06	9.80	Pale reddish brown	Hard
1	1.10	8.82	Pale reddish brown	Hard
6	5.09	1.41	Greyish brown	Steel hard

REMARKS: Scumming at cone 02. Bloated on bottom at cone 6.

POTENTIAL USES: None

HANTS COUNTY

Sample Number
CP-39

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: An exposure approximately 27 m south of Route 14 in Barneys Brook, northwest of Milford Station (Fig. 40).

UTM: 462910 E
4988730 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: A layer of reddish-brown clay, 15 cm thick.

SAMPLE INTERVAL: 15 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Moderate reddish-brown, noncalcareous clay containing some stones. Good workability. Plastic. Water of plasticity 23.6%. Safe drying. Air shrinkage 7.3%. Modulus of rupture 231 p.s.i. Benzidine test negative.

P.C.E.: 4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
05	2.88	9.60	Moderate reddish brown	Hard
04	4.85	6.49	Moderate reddish brown	Very hard
02	6.31	3.76	Dark reddish brown	Steel hard

POTENTIAL USES: Suitable for structural products

HANTS COUNTY

Sample Number
CP-40

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: An exposure approximately 630 m south of Route 14 in Barneys Brook, northwest of Milford Station (Fig. 40).

UTM: 462920 E
4988190 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Reddish-brown clay containing grit, carbonaceous material, and iron carbonates. The exposure is 46 cm wide, 20 cm thick and extends for 3 m along Barneys Brook. The clay grades down into sandy clay.

SAMPLE INTERVAL: 20 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Pale yellowish-brown, noncalcareous clay containing soil material. Fair workability. Poorly plastic. Water of plasticity 26.0%. Safe drying. Air shrinkage 6.6%. Modulus of rupture 199 p.s.i. Benzidine test negative.

P.C.E.: 10

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	4.82	9.59	Moderate reddish brown	Hard
1	5.01	8.53	Moderate reddish brown	Very hard
6	7.65	4.23	Dark moderate red	Steel hard

POTENTIAL USES: None

HANTS COUNTY

Sample Number
CP-41

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: An exposure about 968 m south of Route 14, in the stream bed of Barneys Brook, northwest of Milford Station (Fig. 40).

UTM: 462940 E
4987850 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Greyish-brown clay containing organic material. The exposure measures about 91 cm by 60 cm and has a thickness of 15 cm. Below this it contains alot of grit and stones.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: 15 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Pale yellowish-brown, noncalcareous clay. Fair workability. Plastic. Water of plasticity 23.3%. Safe drying. Air shrinkage 5.7%. Modulus of rupture 220 p.s.i. Benzidine test negative.

P.C.E.: 11

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	2.30	9.69	Light reddish brown	Hard
1	8.16	10.06	Light reddish brown	Hard
6	5.81	3.89	Moderate brown	Steel hard

POTENTIAL USES: None

HANTS COUNTY

Sample Number
CP-42

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: The occurrence is about 1 km south of Route 14 along Barneys Brook, approximately 3.2 km west of Milford Station (Fig. 40).

UTM: 462940 E
4987760 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Reddish-brown clay containing some stones. The outcrop of clay extends over a length of 1.8 m, has a width of 91 cm and thickness in excess of 45 cm.

SAMPLE INTERVAL: 45 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Moderate brown, noncalcareous clay containing a few stones. Very good workability. Very plastic. Water of plasticity 28.0%. Safe drying. Air shrinkage 7.4%. Modulus of rupture 220 p.s.i. Benzidine test negative.

P.C.E.: 6+ (some bloating at cone 3)

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	5.57	6.50	Pale reddish brown	Very hard
04	7.86	2.15	Dark moderate reddish brown	Steel hard
02	7.28	0.06	Dark reddish brown	Steel hard

POTENTIAL USES: Artware, earthenware and structural products

HANTS COUNTY

Sample Number
CP-43

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: Exposure is on the property of Mr. Scothorn, north of Route 14 and west of Barneys Brook in a pasture about 305 m east of Mr. Scothorn's barn (Fig. 40).

UTM: 462540 E
4988710 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: A 3 m wide exposure of light brown clay which outcrops intermittently for a length of 46 m.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Light brown, noncalcareous, soily clay. Good workability. Plastic. Water of plasticity 29.2%. Safe drying. Air shrinkage 6.7%. Modulus of rupture 371 p.s.i. Benzidine test negative.

P.C.E.: 9

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
04	4.47	12.17	Moderate reddish brown	Hard
02	7.54	6.05	Moderate reddish brown	Very hard to steel hard
1	8.36	5.67	Moderate reddish brown	Steel hard

POTENTIAL USES: Structural products

HANTS COUNTY

Sample Number
CP-44

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: The exposure is found in the stream bed of Rines Brook, approximately 530 m north of the power lines which cross Rines Brook (Fig. 41).

UTM: 465050 E
4994960 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Dark grey shale, fine to medium bedded and micaceous. It outcrops continuously in the stream bed for about 54 m.

ATTITUDE OF BEDDING: 340°/07° SW

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Dark grey, noncalcareous shale. Fair workability. Very plastic. Water of plasticity 23.2%. Safe drying. Air shrinkage 5.3%. Modulus of rupture 280 p.s.i. Benzidine test negative.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	6.87	4.65	Moderate reddish brown	Steel hard
04	7.17	2.43	Dark reddish brown	Steel hard
02	6.85	1.51	Dark reddish brown	Steel hard

POTENTIAL USES: Structural products

HANTS COUNTY

Sample Number
CP-45

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: Rines Brook, approximately 4.3 km northwest of Shubenacadie. The occurrence is about 2.3 km north of the power lines which cross Rines Brook (Fig. 41).

UTM: 465150 E
4996030 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Dark grey, medium bedded shale containing pyrite. The outcrop extends for about 61 m along Rines Brook.

ATTITUDE OF BEDDING: 280°/14° NE

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Medium grey, highly calcareous shale. Fair workability. Plastic. Water of plasticity 23.2%. Safe drying. Air shrinkage 3.8%. Modulus of rupture 65 p.s.i. Benzidine test negative. Dark scum on top after drying.

P.C.E.: 4-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	0.17	37.08	Off white	Very soft
1	Nil	37.05	Off white	Very soft
3	0.69	36.56	Off white	Very soft

POTENTIAL USES: None

HANTS COUNTY

Sample Number
CP-46

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: Exposure is approximately 300 m south of the Trans-Canada Highway 102 and 200 m west of Route 215 northwest of Shubenacadie (Fig. 41).

UTM: 467360 E
4994670 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Mottled brownish-red to red clay which is sandy at depth. Upon weathering the clay becomes light grey. The occurrence is about 61 m long, 27 m wide and over 91 cm thick.

SAMPLE INTERVAL: Channel sample across the top 30 cm

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Dark yellowish-orange, noncalcareous clay. Very good workability. Plastic. Safe drying. Air shrinkage 6.5%. Modulus of rupture 255 p.s.i. Benzidine test negative.

P.C.E.: 11

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	4.83	12.25	Moderate reddish orange	Hard
04	6.59	9.44	Moderate reddish orange	Very hard
02	9.83	3.67	Moderate reddish brown	Steel hard

POTENTIAL USES: Face brick, common brick, hollow tile, conduit and sewer pipe

HANTS COUNTY

Sample Number
CP-48

TOPOGRAPHICAL SHEET: 11E/03

LOCATION: On the property of Ben Smith, North Salem road, approximately 1.6 km north of the intersection between the roads going to MacPhees Corner and North Salem. The clay was exposed by digging with a shovel about 305 m west of the road (Fig. 41).

UTM: 463610 E
4995760 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Mottled yellowish-brown to reddish-brown clay containing organic material and grit. Thickness of the clay is in excess of 21 cm.

SAMPLE INTERVAL: 21 cm channel sample.

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Grey and brown (light brown after grinding and mixing), noncalcareous clay. Very good workability. Very plastic. Water of plasticity 31.6%. Safe drying. Air shrinkage 7.3%. Modulus of rupture 255 p.s.i. Benzidine test negative.

P.C.E.: 8-9

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	5.03	10.71	Moderate reddish orange	Hard
04	6.61	9.23	Moderate reddish orange	Hard
02	9.01	3.22	Moderate reddish brown	Steel hard

REMARKS: It appears this clay may cover an extensive area and thus further investigation may be warranted.

POTENTIAL USES: Artware, common brick, face brick, hollow tile, conduit and sewer pipe.

HANTS COUNTY

Sample Number
CP-49

TOPOGRAPHICAL SHEET: 11D/13

LOCATION: Clay was exposed by digging with a shovel in a swampy area about 137 m northwest of the Shubenacadie River, approximately 900 m northeast of Enfield (Fig. 43).

UTM: 458340 E
4976980 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Yellowish-brown clay, 5 cm thick, with extensive iron carbonate stains. Underlying this is a reddish-brown clay containing some organic and carbonaceous material. It has a minimum thickness of 46 cm.

SAMPLE INTERVAL: Channel sample from the top 30 cm of the reddish-brown clay horizon

TYPE OF MATERIAL: Clay

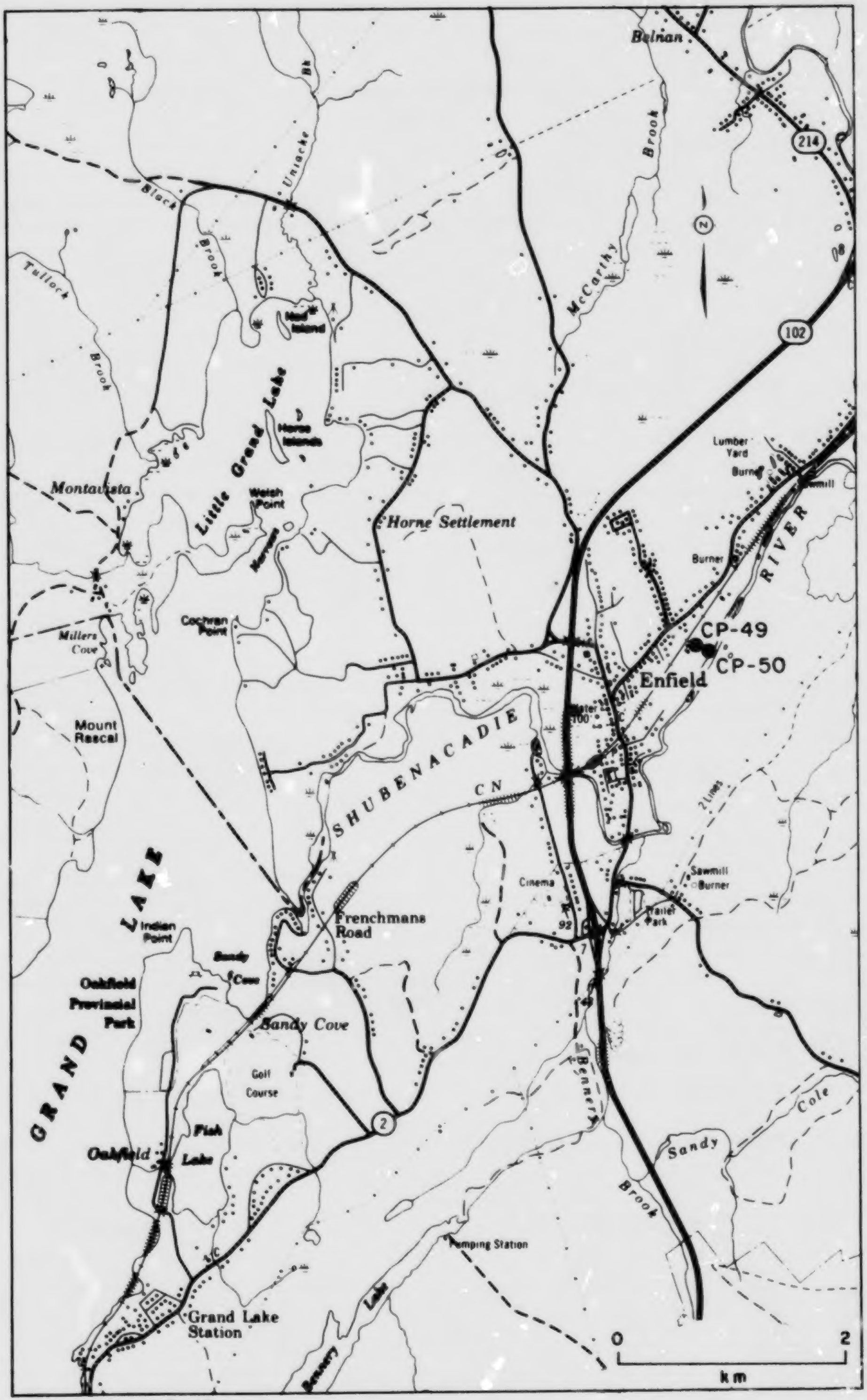
UNFIRED CHARACTERISTICS: Light-brown, noncalcareous clay. Very good workability. Highly plastic. Water of plasticity 28.0%. Safe drying. Air shrinkage 7.8%. Modulus of rupture 285 p.s.i. Benzidine test negative.

P.C.E.: 9-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	7.62	6.79	Moderate reddish orange	Steel hard
04	8.24	1.50	Moderate reddish brown	Steel hard
02	7.62	0.02	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Structural products


Belnan
214
Brook
McCarthy
2
102
Unlacke
Bk
Black
Brook
Tullock
Brook
Little Grand Lake
Horse Islands
Montavista
Welsh Point
Horne Settlement
Lumber Yard
Burner
Sawmill
RIVER
Burner
CP-49
CP-50
Enfield
Cochran Point
Millers Cove
Mount Rascal
SHUBENACADIE
CN
2 Lines
Sawmill Burner
Cinema
92
7
Frenchmans Road
Indian Point
Sandy Cove
Oakfield Provincial Park
Sandy Cove
GRAND LAKE
Golf Course
2
Fish Lake
Oakfield
Cole
Sandy
Brook
Pumping Station
Grand Lake Station
Lake
0
2
km

Ref. Map 11-D-13

Figure 43. Location map for samples CP-49, 50 (Enfield)

HANTS COUNTY

Sample Number
CP-50

TOPOGRAPHICAL SHEET: 11D/13

LOCATION: The exposure is approximately 137 m south of sample CP-49, on the western side of the Shubenacadie River (Fig. 43).

UTM: 458460 E
4976880 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Reddish-brown clay containing some organic and carbonaceous material. The thickness of the clay is in excess of 30 cm.

SAMPLE INTERVAL: 30 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Moderate reddish-orange, noncalcareous clay. Very good workability. Highly plastic. Water of plasticity 33.2%. Safe drying. Air shrinkage 8.1%. Modulus of rupture 216 p.s.i. Benzidine test negative.

P.C.E.: 11-12

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	6.65	8.09	Moderate reddish orange	Steel hard
04	9.09	2.46	Moderate reddish brown	Steel hard
02	10.79	0.02	Moderate reddish brown	Steel hard

POTENTIAL USES: Structural products

HANTS COUNTY

Sample Number
CP-51

TOPOGRAPHICAL SHEET: 11D/14

LOCATION: L. E. Shaw Ltd. Brick and Tile Plant southeast of Highway 2, at Lantz. The pit is approximately 305 m southwest of the plant where L. E. Shaw presently have their quarry (Fig. 44).

UTM: 461820 E
4980350 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Compact, reddish-brown clay. The sample was taken from the southeastern corner of the pit where the clay was exposed for a length and width of 9 m and a thickness greater than 4.5 m.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

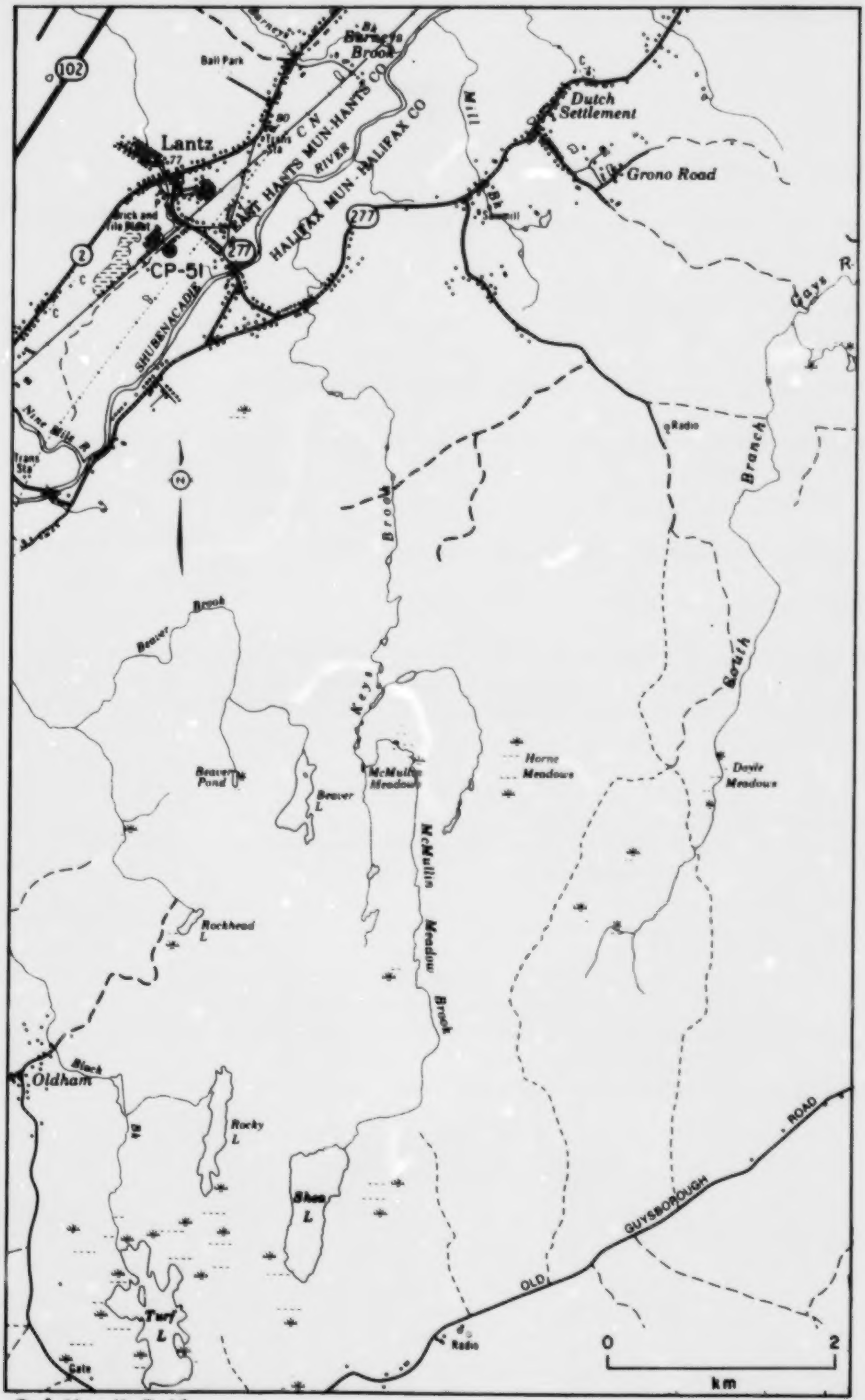
UNFIRED CHARACTERISTICS: Pale reddish-brown, calcareous clay. Very good workability. Very plastic. Water of plasticity 28.0%. Safe drying. Air shrinkage 7.6%. Modulus of rupture 235 p.s.i. Benzidine test negative.

P.C.E.: 4-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.81	8.15	Light pale reddish brown	Very hard to steel hard
04	6.92	4.00	Pale reddish brown	Steel hard
02	8.24	0.33	Pale reddish brown	Steel hard

POTENTIAL USES: This material is presently being used in the manufacture of brick and tile.


102
Ball Park
Barneys Bk
Barneys Brook
Lantz
Brick and Tile Plant
CP-51
2
277
C N
EAST HANTS MUN-HANTS CO
HALIFAX MUN-HALIFAX CO
RIVER
SHUBENACADIE
Nine Mile R
Trans Sta
Mill Bk
Sawmill
Dutch Settlement
Grono Road
Gays R
Radio
Branch
South
Beaver Brook
Beaver Pond
Beaver L
Keys Brook
McMullin Meadows
McMullin Meadow Brook
Horne Meadows
Davis Meadows
Rockhead L
Black Bk
Oldham
Rocky L
Shea L
Turf L
Gate
Radio
OLD GUYSBOROUGH ROAD
0
2
km

Ref. Map II-D-14

Figure 44. Location map for sample CP-51 (Lantz)

INVERNESS COUNTY

Sample Number
CP-64

TOPOGRAPHICAL SHEET: 11K/04

LOCATION: The shale occurs approximately 1 km north of the breakwater wharf at Port Hood (Fig. 45).

UTM: 612300 E
5097910 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Interbedded red and grey shale. Highly fissile and thinly bedded. The outcrop is 4.6 m thick and extends over a distance of approximately 18 m.

SAMPLE INTERVAL: Channel sample across the lower 1.8 m of the exposure.

TYPE OF MATERIAL: Shale

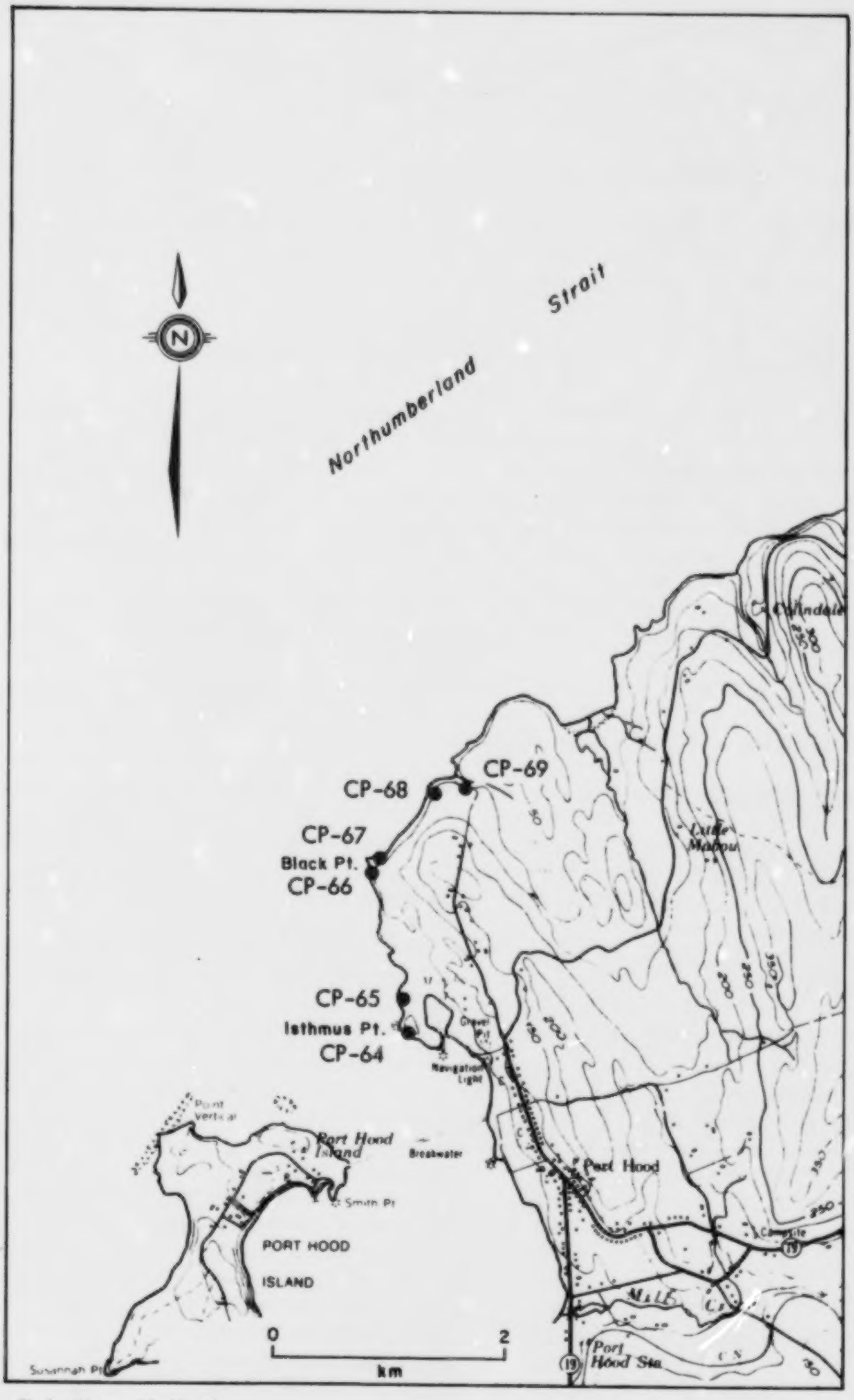
UNFIRED CHARACTERISTICS: Pale red, slightly calcareous shale. Good workability. Very plastic. Water of plasticity 18.0%. Safe drying. Air shrinkage 5.5%. Modulus of rupture 145 p.s.i. Benzidine test negative.

P.C.E.: 4-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	4.05	6.25	Moderate reddish orange	Steel hard
04	5.46	4.21	Moderate reddish brown	Steel hard
02	6.38	1.96	Moderate reddish brown	Steel hard

POTENTIAL USES: Earthenware, artware and structural products


N
Northumberland Strait
Colindale
Little Mabou
CP-69
CP-68
CP-67
Black Pt.
CP-66
CP-65
Isthmus Pt.
CP-64
Gravel Pit
Navigation Light
Point Vertical
Port Hood Island
Breakwater
Smith Pt
PORT HOOD ISLAND
Port Hood
Campsite
19
Mile Cr
Port Hood Sta.
C N
Susannah Pt
250
300
350
0
2
km

Ref. Map II-K-4

Figure 45. Location map for samples CP-64-69 (Port Hood, Cape Breton Island)

INVERNESS COUNTY

Sample Number
CP-65

TOPOGRAPHICAL SHEET: 11K/04

LOCATION: Approximately 1 1/2 km north of the breakwater wharf at Port Hood. The outcrop forms the side of a 12 m bluff, approximately 18 m from shore (Fig. 45).

UTM: 612220 E
5098220 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: At this site there are 3 horizons of clay which comprise a minimum total thickness of 41 cm. The top 10 cm is medium grey clay. It is underlain by 10 cm of yellowish-brown clay which in turn is underlain by bluish-grey clay more than 20 cm thick. All of the clays contain carbonaceous material and stones 2-8 cm in diameter, and show extensive iron carbonate stains, especially in the lower layer. Weathered surfaces of the clay are medium to dark grey in colour.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: 41 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Brownish-grey, nonclacareous clay containing shale and coal. Good workability. Highly plastic. Water of plasticity 28.8%. Safe drying. Air shrinkage 6.3%. Modulus of rupture 178 p.s.i. Benzidine test negative.

P.C.E.: 15

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1740	7.18	16.42	Moderate reddish brown	Very hard
1815	9.22	10.52	Moderate reddish brown	Steel hard
1875	9.03	7.60	Moderate reddish brown	Steel hard
1940	11.61	4.02	Dark reddish brown	Steel hard
2000	11.31	3.03	Dark reddish brown	Steel hard
2050	11.64	2.82	Dark reddish brown	Steel hard
2100	9.53	3.33	Dark reddish brown	Steel hard
2150	7.11	3.37	Dark reddish brown	Steel hard
2195	4.37	4.59	Dark reddish brown	Steel hard
2225	2.02	5.71	Dark reddish brown	Steel hard
2255	0.54	5.68	Dark reddish brown	Steel hard
2280	+0.97	5.54	Dark reddish brown	Steel hard
2295	+1.54	5.83	Dark reddish brown	Steel hard

POTENTIAL USES: Brick

INVERNESS COUNTY

Sample Number
CP-66

TOPOGRAPHICAL SHEET: 11K/04

LOCATION: Midway up the face of a 30 m bluff, at Black Point (Fig. 45).

UTM: 611940 E
5099320 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Medium grey, thinly bedded shale. The shale is micaceous, friable and interbedded with massive sandstone.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Brownish-grey, very slightly calcareous shale. Poor workability. Plastic. Water of plasticity 20.0%. Safe drying. Air shrinkage 4.1%. Modulus of rupture 102 p.s.i. Benzidine test negative.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.26	10.96	Light moderate reddish brown	Hard
04	4.50	7.76	Moderate reddish brown	Hard
02	8.02	2.14	Dark moderate reddish brown	Steel hard

REMARKS: Short firing range

POTENTIAL USES: None

INVERNESS COUNTY

Sample Number
CP-67

TOPOGRAPHICAL SHEET: 11K/04

LOCATION: At Black Point on the Northumberland Strait (Fig. 45).

UTM: 612000 E
5099440 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Thinly bedded, highly fissile, medium grey shale grading down into black carbonaceous shale. The shale shows iron carbonate stains. The total thickness is over 4.6 m.

ATTITUDE OF BEDDING: 275°/20° SW

SAMPLE INTERVAL: Channel sample across the top 1.8 m of the shale

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Brownish-grey, highly calcareous (sulphide smell) shale. Fair workability. Fairly plastic. Water of plasticity 18.8%. Safe drying. Air shrinkage 4.3%. Benzidine test negative.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	0.35	14.95	Pale orange	Hard
1	0.18	14.42	Pale orange	Very hard
3	3.50	6.85	Moderate brown	Steel hard

POTENTIAL USES: Face brick

INVERNESS COUNTY

Sample Number
CP-68

TOPOGRAPHICAL SHEET: 11K/04

LOCATION: The occurrence is north of Black Point along the side of a 23 m bluff (Fig. 45).

UTM: 612440 E
5099970 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Thinly bedded, highly fissile, red shale. Bed approximately 4.6 m thick.

SAMPLE INTERVAL: 1.2 m channel sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Reddish-brown, slightly calcareous shale. Good workability. Plastic. Water of plasticity 21.0%. Safe drying. Air shrinkage 6.6%. Modulus of rupture 170 p.s.i. Benzidine test negative.

P.C.E.: 14+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.85	8.50	Light moderate reddish brown	Hard
04	4.30	6.02	Moderate reddish brown	Very hard
02	6.05	3.57	Moderate reddish brown	Steel hard

POTENTIAL USES: Structural products

INVERNESS COUNTY

Sample Number
CP-69

TOPOGRAPHICAL SHEET: 11K/04

LOCATION: At the southern end of a quarry approximately 1.2 km northeast of Black Point (Fig. 45).

UTM: 612770 E
5100100 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Mottled red and grey shale overlain by medium grey clay-shale. Both exhibit extensive iron carbonate stains. The entire unit is approximately 1 m thick and extends for 30 m along the top of the quarry's southern wall.

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay-shale

UNFIRED CHARACTERISTICS: Light brownish-grey, noncalcareous clay and shale. Very good workability. Very plastic. Water of plasticity 24.0%. Safe drying. Air shrinkage 6.3%. Scum at top edges of drying. Modulus of rupture 214 p.s.i. Benzidine test positive.

P.C.E.: 16

FIRED CHARACTERISTICS:

Temp °F	Fired Shrinkage %	Absorption %	Colour	Hardness
1790	2.73	12.43	Moderate reddish orange	Hard
1860	4.12	8.44	Moderate reddish orange	Very hard
1930	5.24	6.37	Moderate reddish brown	Very hard
2000	5.96	5.06	Moderate reddish brown	Very hard
2050	6.22	3.41	Moderate reddish brown	Steel hard
2110	6.16	2.77	Moderate reddish brown	Steel hard
2160	5.08	3.31	Yellowish grey	Steel hard
2205	1.20	4.74	Yellowish grey	Steel hard
2235	+1.02	5.78	Yellowish grey	Steel hard
2265	+3.91	7.57	Moderate yellowish brown	Steel hard
2295	+5.54	8.48	Moderate yellowish brown	Steel hard
2315	+8.29	9.32	Moderate yellowish brown	Steel hard

POTENTIAL USES: Earthenware, artware and structural products.

INVERNESS COUNTY

Sample Number
CP-70

TOPOGRAPHICAL SHEET: 11F/13

LOCATION: Along the shore of the Northumberland Strait, 1.7 km south of the beach at Port Hood Mines (Fig. 46).

UTM: 613640 E
5092430 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Medium grey clay-shale underlying a 30 cm thick seam of coal. The clay-shale shows extensive iron carbonate stains, is 1.8 m thick, and near the top contains carbonaceous material. Upon weathering it becomes light grey in colour.

ATTITUDE OF BEDDING: 015°/68° NW

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay-shale

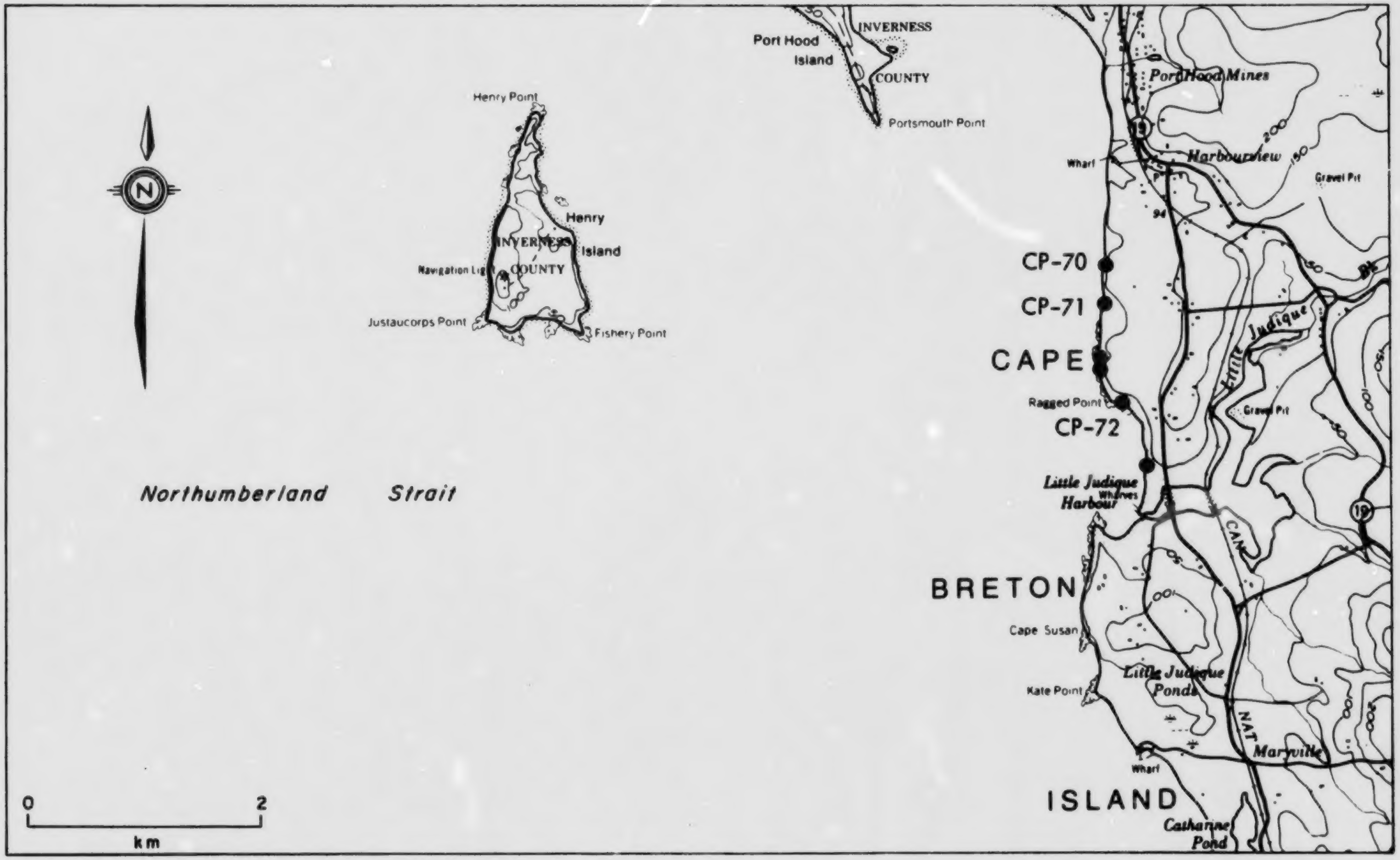
UNFIRED CHARACTERISTICS: Light greenish-grey, noncalcareous shale and clay. Good workability. Plastic. Water of plasticity 26.4%. Safe drying. Air shrinkage 6.3%. Modulus of rupture 243 p.s.i. Benzidine test positive. Scumming on drying.

P.C.E.: 8

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	3.20	12.77	Moderate reddish orange	Hard
04	4.62	10.36	Pale reddish brown	Hard to very hard
02	8.38	3.50	Light moderate reddish brown	Steel hard

POTENTIAL USES: None


Port Hood
Island
INVERNESS
COUNTY
Portsmouth Point
Henry Point
Henry
Island
INVERNESS
COUNTY
Navigation Lig
Justaucorps Point
Fishery Point
N
Northumberland Strait
Port Hood Mines
Harbourview
Wharf
Gravel Pit
94
19
CP-70
CP-71
CAPE
Ragged Point
CP-72
Little Judique
Gravel Pit
Little Judique Harbour
Wharves
CAN
BRETON
Cape Susan
Kate Point
Little Judique Ponds
NAT
Maryville
Wharf
ISLAND
Catharine Pond
200
150
100
0
2
km

Ref. Map 11-F-13

Figure 46. Location map for samples CP-70-72 (Little Judique Harbour, Cape Breton Island)

INVERNESS COUNTY

Sample Number
CP-71

TOPOGRAPHICAL SHEET: 11F/13

LOCATION: Along the shoreline of the Northumberland Strait, 2.1 km south of the beach at Port Hood Mines (Fig. 46).

UTM: 613640 E
5092170 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Grey, thinly bedded, very friable shale which outcrops for approximately 46 m along the shore of the Northumberland Strait.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Pale brown, noncalcareous shale. Fair workability. Plastic. Water of plasticity 20.8%. Safe drying. Air shrinkage 4.5%. Modulus of rupture 101 p.s.i. Benzidine test negative.

P.C.E.: 7-8

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.65	9.75	Moderate reddish orange	Hard
04	4.90	7.09	Pale reddish brown	Very hard
02	7.15	2.32	Moderate reddish brown	Steel hard

POTENTIAL USES: Structural products

INVERNESS COUNTY

Sample Number
CP-72

TOPOGRAPHICAL SHEET: 11F/13

LOCATION: Along the shore of the Northumberland Strait, approximately 2.7 km south of the beach at Port Hood Mines (Fig. 46).

UTM: 613760 E
5091260 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Interbedded red shale and grey clay-shale. The red shale is thinly bedded and very friable. The clay-shale shows iron carbonate staining and contains carbonaceous material.

ATTITUDE OF BEDDING: 195°/73° SE

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Moderate reddish-brown, highly calcareous shale. Poor workability. Poorly plastic. Water of plasticity 20.4%. Safe drying. Air shrinkage 3.8%. Benzidine test negative.

P.C.E.: 3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.05	12.71	Light moderate reddish brown	Hard
04	1.45	11.96	Moderate reddish brown	Hard
02	5.20	4.63	Moderate reddish brown	Steel hard

POTENTIAL USES: None

INVERNESS COUNTY

Sample Number
CP-75

TOPOGRAPHICAL SHEET: 11K/03

LOCATION: The exposure is 727 m south of the church at East Lake Ainslie on the shore of Lake Ainslie (Fig. 47).

UTM: 643110 E
5110270 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Medium grey clay containing small flecks of pyrite. The clay is over 2.4 m thick and is overlain by a red clay.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

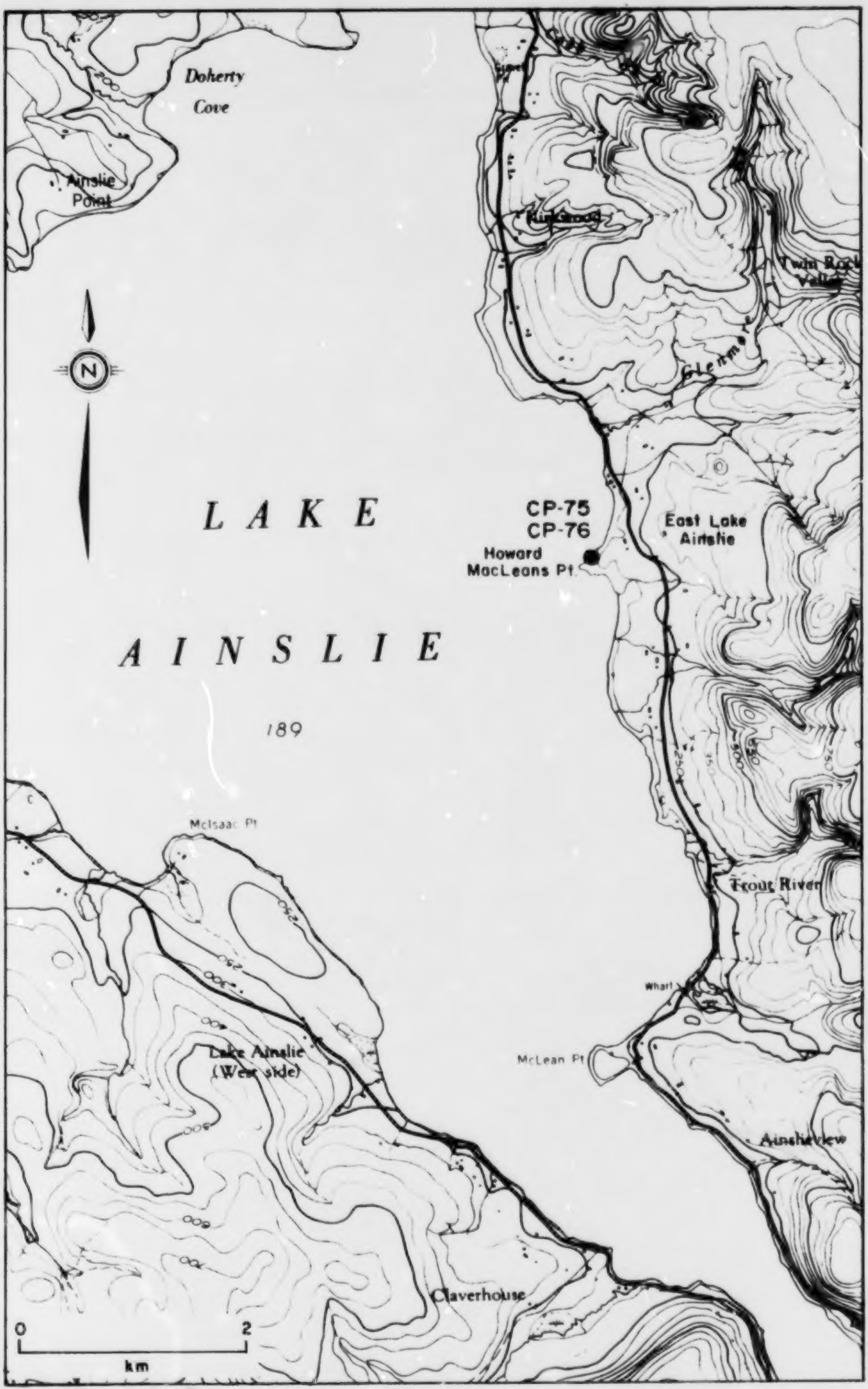
UNFIRED CHARACTERISTICS: Medium light grey, highly calcareous clay. Very good workability. Plastic. Water of plasticity 24.0%. Safe drying. Air shrinkage 6.8%. Modulus of rupture 168 p.s.i. Benzidine test positive.

P.C.E.: 4-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	4.00	7.59	Light brown	Very hard
04	4.50	6.37	Light brown	Very hard
02	6.85	2.90	Light brown	Very hard

POTENTIAL USES: Structural products


Doherty
Cove
Ainslie
Point
Kinloch
Twin Rock
Valley
Glenmore
LAKE
AINSLIE
189
CP-75
CP-76
Howard
MacLeans Pt.
East Lake
Ainslie
McIsaac Pt
Trout River
Wharf
McLean Pt
Lake Ainslie
(West side)
Ainslieview
Claverhouse
0
2
km
N

Ref. Map 11-K-3

Figure 47. Location map for samples CP-75, 76 (Lake Ainslie, Cape Breton Island)

INVERNESS COUNTY

Sample Number
CP-76

TOPOGRAPHICAL SHEET: 11K/03

LOCATION: Exposure 727 m south of the church at East Lake Ainslie along the shore of Lake Ainslie on the northern side of Howard MacLeans Point (Fig. 47).

UTM: 643110 E
5110270 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Red clay containing small patches of soil material. It ranges in thickness from 61-91 cm.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Moderate reddish-brown, calcareous clay containing a few stones. Very good workability. Very plastic. Water of plasticity 30.8%. Safe drying. Air shrinkage 7.3%. Modulus of rupture 327 p.s.i. Benzidine test negative.

P.C.E.: 3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	5.40	5.19	Moderate reddish brown	Steel hard
04	7.80	0.34	Moderate reddish brown	Steel hard
02	4.15	0.41	Dark reddish brown	Steel hard

POTENTIAL USES: Earthenware, artware, common brick, hollow tile and drain tile.

INVERNESS COUNTY

Sample Number
CP-77

TOPOGRAPHICAL SHEET: 11F/14

LOCATION: Approximately 750 m east of Blues, and 800 m southeast of Eden (Fig. 48).

UTM: 645980 E
5078980 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Light grey clay, 15 cm thick. The clay contains organic matter and exhibits iron carbonate stains. Underlying this is a reddish-brown clay which has a thickness in excess of 61 cm.

SAMPLE INTERVAL: Channel sample across the upper 30 cm of thickness.

TYPE OF MATERIAL: Clay

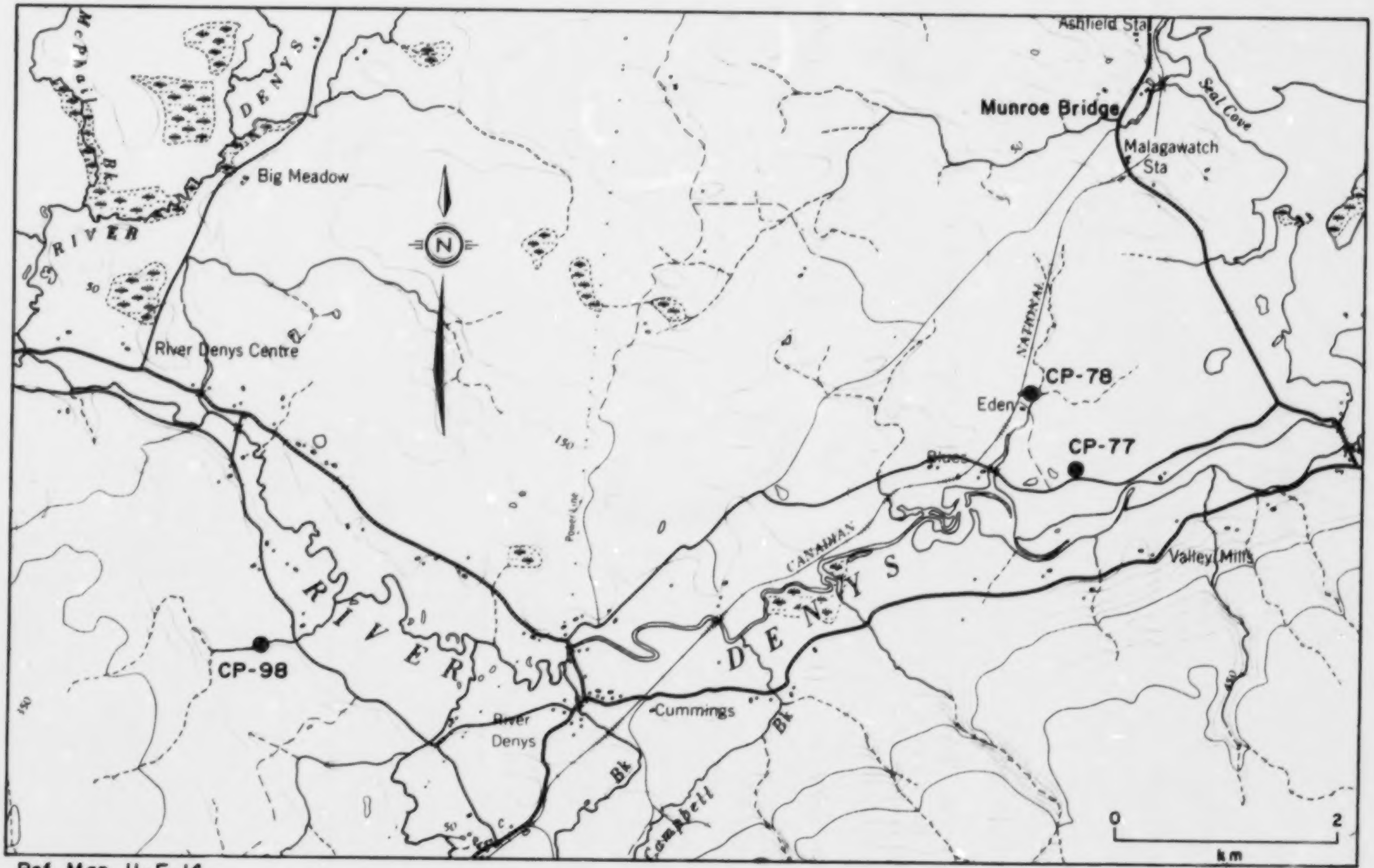
UNFIRED CHARACTERISTICS: Pale reddish-brown, noncalcareous clay. Very good workability. Highly plastic. Water of plasticity 26.8%. Safe drying. Air shrinkage 7.2%. Modulus of rupture 395 p.s.i. Benzidine test negative.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	7.25	3.30	Moderate reddish brown	Steel hard
04	7.85	0.79	Dark reddish brown	Steel hard
02	0.90	0.49	Dark reddish brown	Steel hard

POTENTIAL USES: Earthenware, artware and structural products


McPhail Bk
RIVER
DENYS
Big Meadow
River Denys Centre
Ashfield Sta
Munroe Bridge
Seal Cove
Malagawatch Sta
NATIONAL
CP-78
Eden
CP-77
Blues
CANADIAN
RIVER DENYS
Valley Mills
Power Line
150
50
CP-98
River Denys
Cummings
Bk
Campbell Bk
0
2
km
N

Ref. Map 11-F-14

Figure 48. Location map for samples CP-77, 78, 98 (River Denys, Cape Breton Island)

INVERNESS COUNTY

Sample Number
CP-78

TOPOGRAPHICAL SHEET: 11F/14

LOCATION: Eden, on the property of Mr. Walter Miller. The clay was exposed by digging in a field east of Mr. Miller's house (Fig. 48).

UTM:	645580 E 5079680 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Reddish-brown clay containing carbonaceous and organic material. The clay has a thickness in excess of 61 cm.

SAMPLE INTERVAL: Channel sample across top 30 cm of thickness

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Pale reddish-brown, highly calcareous clay. Very good workability. Highly plastic. Water of plasticity 28.0%. Safe drying. Air shrinkage 8.1%. Modulus of rupture 383 p.s.i. Benzidine test negative.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.70	12.92	Moderate reddish orange	Very hard
04	2.20	11.66	Moderate reddish orange	Very hard
02	6.90	0.09	Dark reddish brown	Steel hard

POTENTIAL USES: Artware and brick.

INVERNESS COUNTY

Sample Number
CP-79

TOPOGRAPHICAL SHEET: 11K/03

LOCATION: On Highway 19 about 457 m north of the large oil tanks at Inverness there is a road going to the shore of the Northumberland Strait. The exposure is on the shore, about 215 m northeast of the point where this road intersects the shore (Fig. 49).

UTM: 630610 E
5121960 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Mottled, light grey to medium grey clay showing extensive iron carbonate stains. The outcrop is approximately 1 m^2.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

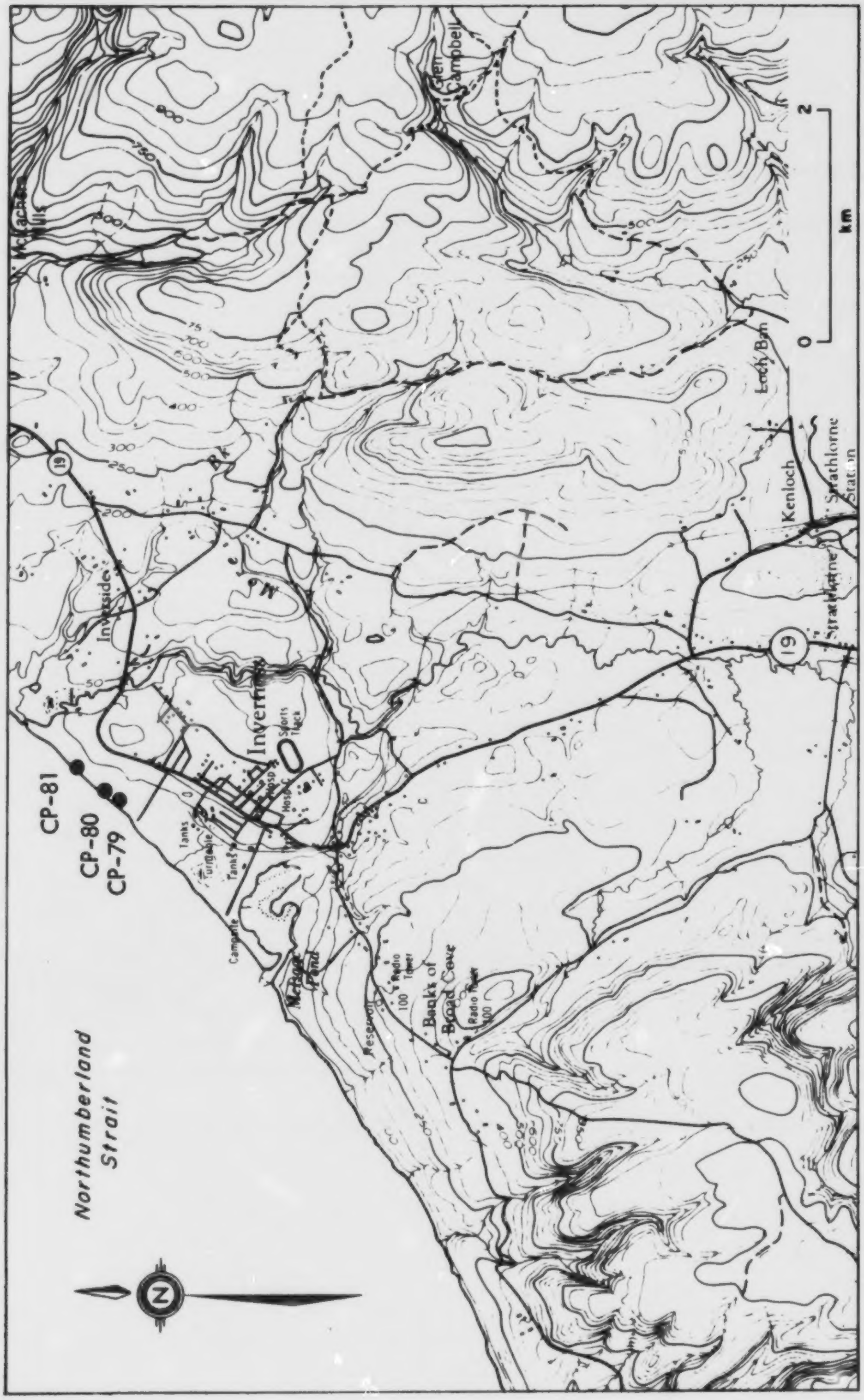
UNFIRED CHARACTERISTICS: Light grey, slightly calcareous clay containing some stones. Very good workability. Highly plastic. Water of plasticity 27.2%. Safe drying. Air shrinkage 5.9%. Modulus of rupture 232 p.s.i. Benzidine test negative.

P.C.E.: 15-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	5.25	7.68	Greyish orange	Steel hard
04	6.95	4.23	Greyish orange	Steel hard
02	9.25	0.09	Pale yellowish brown	Steel hard

POTENTIAL USES: Earthenware, artware and structural products


CP-81
CP-80
CP-79
Northumberland Strait
Inverness
Inverside
Glen Campbell
Loch Ban
Kenloch
Strathlorne Station
Strathlorne
Banks of Broad Cove
Radio Tower
100
Reservoir
Campsite
Tanks
Turntable
Sports Track
Hospital
19
800
750
700
600
500
400
300
250
200
50
0
2
km
N

Ref. Map 11-K-3

Figure 49. Location map for samples CP-79-81 (Inverness, Cape Breton Island)

INVERNESS COUNTY

Sample Number
CP-80

TOPOGRAPHICAL SHEET: 11K/03

LOCATION: On Highway 19 about 457 m north of the large oil tanks at Inverness there is a road going to the shore of the Northumberland Strait. The exposure is found along the shore 324 m northeast of the point where this road intersects the shore (Fig. 49).

UTM: 630690 E
5122020 N

GEOLOGICAL UNIT: Pictou Group, Pennsylvanian age

DESCRIPTION: Red shale exposed in the bed of an intermittent stream

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Dark moderate reddish-brown, calcareous shale and siltstone. Poor workability. Fairly plastic. Water of plasticity 19.2%. Safe drying. Air shrinkage 5.4%. Benzidine test negative.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	5.30	4.95	Moderate reddish brown	Steel hard
04	6.60	3.10	Moderate reddish brown	Steel hard
02	7.95	0.85	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Brick

INVERNESS COUNTY

Sample Number
CP-81

TOPOGRAPHICAL SHEET: 11K/03

LOCATION: On Highway 19, about 457 m north of the large oil tanks at Inverness there is a road going to the shore of the Northumberland Strait. The outcrop is along the shore, 686 m northeast of the point where this road intersects the shoreline (Fig. 49).

UTM: 630910 E
5122310 N

GEOLOGICAL UNIT: Pictou Group, Pennsylvanian age

DESCRIPTION: Grey, fissile, weathered shale which exhibits extensive iron carbonate stains. The shale has a thickness in excess of 61 cm.

ATTITUDE OF BEDDING: 290°/17° NE

SAMPLE INTERVAL: 61 cm channel sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Greyish-yellow-green, calcareous shale. Fair workability. Fairly plastic. Water of plasticity 20.4%. Safe drying. Air shrinkage 3.6%. Benzidine test negative.

P.C.E.: 4-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.45	14.15	Moderate reddish orange	Hard
04	2.00	13.10	Pale reddish brown	Very hard
02	5.40	6.61	Moderate reddish brown	Steel hard

POTENTIAL USES: None

INVERNESS COUNTY

Sample Number
CP-82

TOPOGRAPHICAL SHEET: 11K/06

LOCATION: Broad Cove. On Highway 19 about 457 m north of the large oil tanks at Inverness there is a road going to the shore of the Northumberland Strait. The exposure is along the shore, approximately 2.7 km northeast of the point where this road intersects the shore (Fig. 50).

UTM: 632270 E
5123850 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Red clay of undetermined thickness

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Pale reddish-brown, highly calcareous clay containing a few stones. Very good workability. Very plastic. Water of plasticity 22.4%. Safe drying. Air shrinkage 6.3%. Modulus of rupture 255 p.s.i. Benzidine test negative.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.80	11.15	Light moderate reddish brown	Hard
04	2.00	8.34	Moderate reddish brown	Very hard
02	5.60	3.02	Moderate reddish brown	Steel hard

POTENTIAL USES: None

INVERNESS COUNTY

Sample Number
CP-84

TOPOGRAPHICAL SHEET: 11K/06

LOCATION: On a small unnamed brook approximately 1.6 km southwest of Munro Brook. The exposure is about 740 m southeast of the road going from Cranton Section to Margaree Forks (Fig. 51).

UTM: 651810 E
5132620 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Interbedded reddish-brown and dark grey shale, overlain by grey limestone. The outcrop ranges in thickness from 3-6 m and extends along the unnamed brook for approximately 557 m.

ATTITUDE OF BEDDING: 073°/24° SE

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

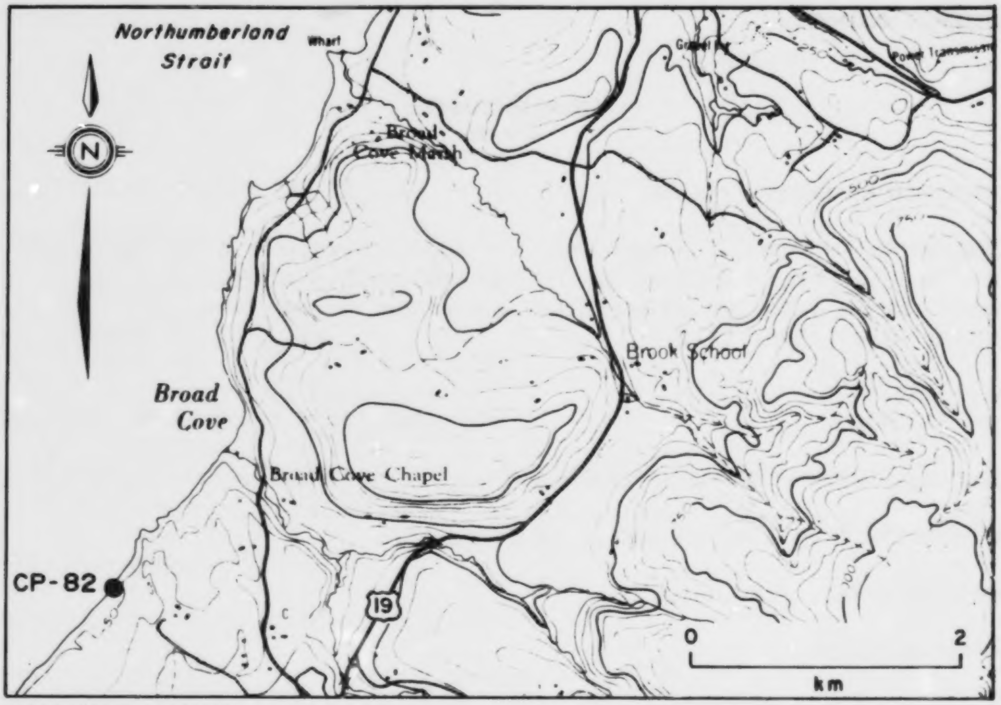
UNFIRED CHARACTERISTICS: Pale red-purple, noncalcareous shale and siltstone. Poor workability. Poorly plastic. Water of plasticity 15.2%. Safe drying. Air shrinkage 3.1%. Benzidine test negative.

P.C.E.: 5

FIRED CHARACTERISTICS:

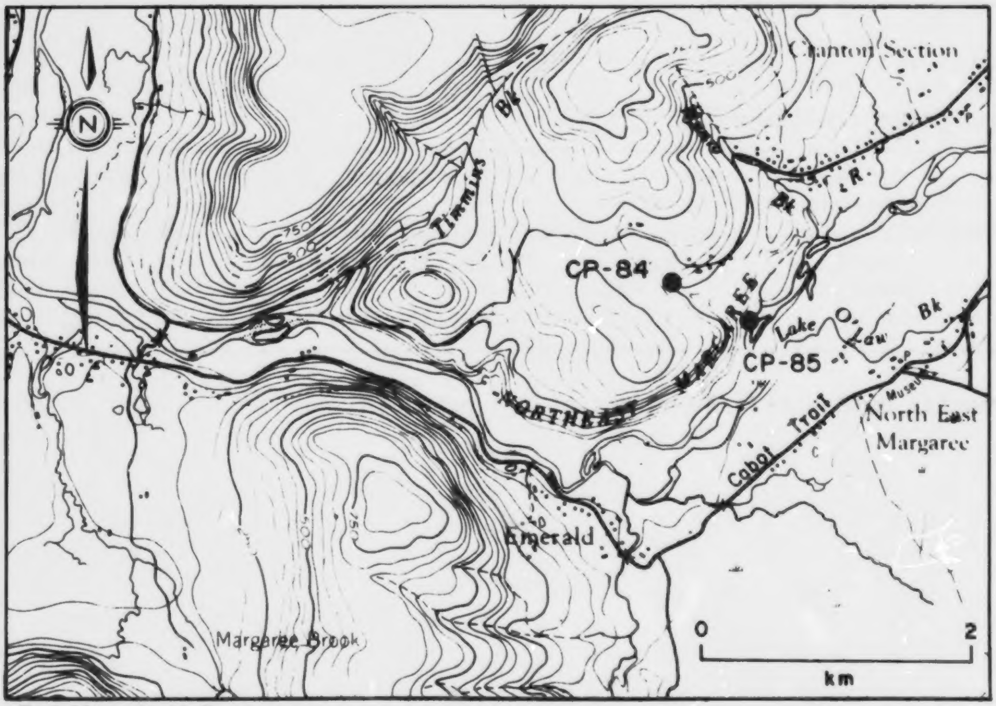
Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.75	9.51	Moderate reddish brown	Hard
04	2.80	7.54	Moderate reddish brown	Very hard
02	4.00	3.96	Moderate reddish brown	Steel hard

POTENTIAL USES: None


Northumberland Strait
Wharf
Gravel Pit
Power Transmission
N
Broad Cove Marsh
500
Brook School
Broad Cove
Broad Cove Chapel
CP-82
19
0
2
km

Ref. Map II-K-6

Figure 50. Location map for sample CP-82 (Broad Cove, Cape Breton Island)


N
Chanton Section
500
Bk
Timmins
750
500
CP-84
CP-85
Lake O'Law Bk
NORTHEAST MARGAREE R
Cabot Trail
Museum
North East Margaree
Emerald
750
500
Margaree Brook
0
2
km

Ref. Map II-K-6

Figure 51. Location map for samples CP-84, 85 (North East Margaree, Cape Breton Island)

INVERNESS COUNTY

Sample Number
CP-85

TOPOGRAPHICAL SHEET: 11K/06

LOCATION: On a small unnamed brook, approximately 1.6 km southwest of Munro Brook. The outcrop is 1.6 km southeast of the road going from Cranton Section to Margaree Forks where the brook intersects Northeast Margaree River (Fig. 51).

UTM: 652210 E
5132430 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Grey clay in excess of 76 cm thick.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Medium light grey, slightly calcareous clay containing gypsum. Very good workability. Very plastic. Water of plasticity 26.0%. Safe drying. Air shrinkage 4.4%. Modulus of rupture 140 p.s.i. Benzidine test negative.

P.C.E.: 4-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	4.54	10.07	Moderate orange pink	Very hard
04	5.05	8.78	Greyish orange	Steel hard
02	7.20	5.15	Pale yellowish orange	Steel hard

POTENTIAL USES: Artware and structural products

INVERNESS COUNTY

Sample Number
CP-86

TOPOGRAPHICAL SHEET: 11K/07

LOCATION: Exposure on the eastern side of the road approximately 400 m south of the church at Kingross (Fig. 52).

UTM: 659590 E
5145060 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Mottled greenish-grey and red clay extending along the road for about 50 m

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Light greenish-grey, highly calcareous clay. Very good workability. Fairly plastic. Water of plasticity 16.0%. Safe drying. Air shrinkage 4.0%. Modulus of rupture 84 p.s.i. Benzidine test faint positive.

P.C.E.: 5

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.97	5.89	Light moderate reddish brown	Steel hard
04	5.03	3.64	Moderate reddish brown	Steel hard
02	7.09	0.53	Dark reddish brown	Steel hard

POTENTIAL USES: Brick

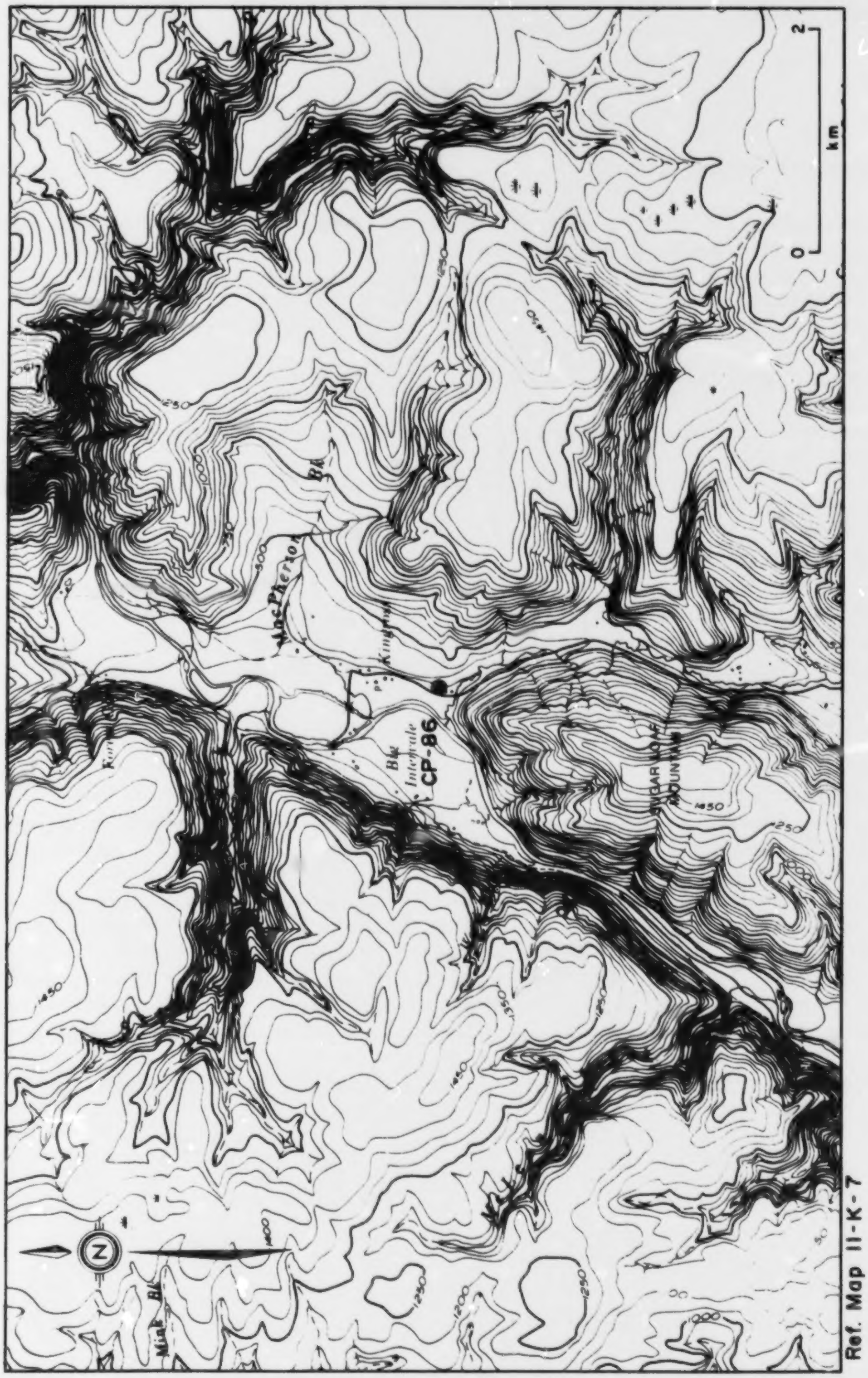

CP-86
Big Intervale
Kingross
MacPherson Bk
Sugar Loaf Mountain
Mink Bk
N
0
2
km
1250
1450
1000
Ref. Map 11-K-7

Figure 52. Location map for sample CP-86 (Kingross, Cape Breton Island)

INVERNESS COUNTY

Sample Number
CP-98

TOPOGRAPHICAL SHEET: 11F/14

LOCATION: On the southern side of the road going to River Denys from River Denys Centre. The exposure is in the first brook that crosses the road, approximately 265 m west of the bridge (Fig. 48).

UTM: 638770 E
5077240 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Red micaceous clay containing some gritty material. The outcrop extends along the southern bank of the brook for 3 m with a thickness of 30 cm.

SAMPLE INTERVAL: 30 cm channel sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Pale brown, highly calcareous clay containing some sandy material. Good workability. Plastic. Water of plasticity 16.0%. Safe drying. Air shrinkage 5.9%. Modulus of rupture 214 p.s.i. Benzidine test negative.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	1.95	5.88	Pale reddish brown	Very hard
1	1.06	6.35	Pale reddish brown	Very hard
3	3.89	2.48	Dark moderate reddish brown	Steel hard

REMARKS: It appears this is a very small pocket of glacial clay overlying bedrock.

POTENTIAL USES: Common brick

KINGS COUNTY

Sample Number
CP-53

TOPOGRAPHICAL SHEET: 21H/02

LOCATION: Morden. On the southern coast of the Bay of Fundy approximately 31 m west of a small stream flowing into the Bay at French Cross Point, near Morden (Fig. 53).

UTM: 346530 E
4996150 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Reddish-brown clay containing some organic material. It contains no grit, but a few stones are present. The clay extends to the west for about 31 m along the coast and has a minimum thickness of 91 cm.

SAMPLE INTERVAL: 30 cm channel sample

TYPE OF MATERIAL: Clay

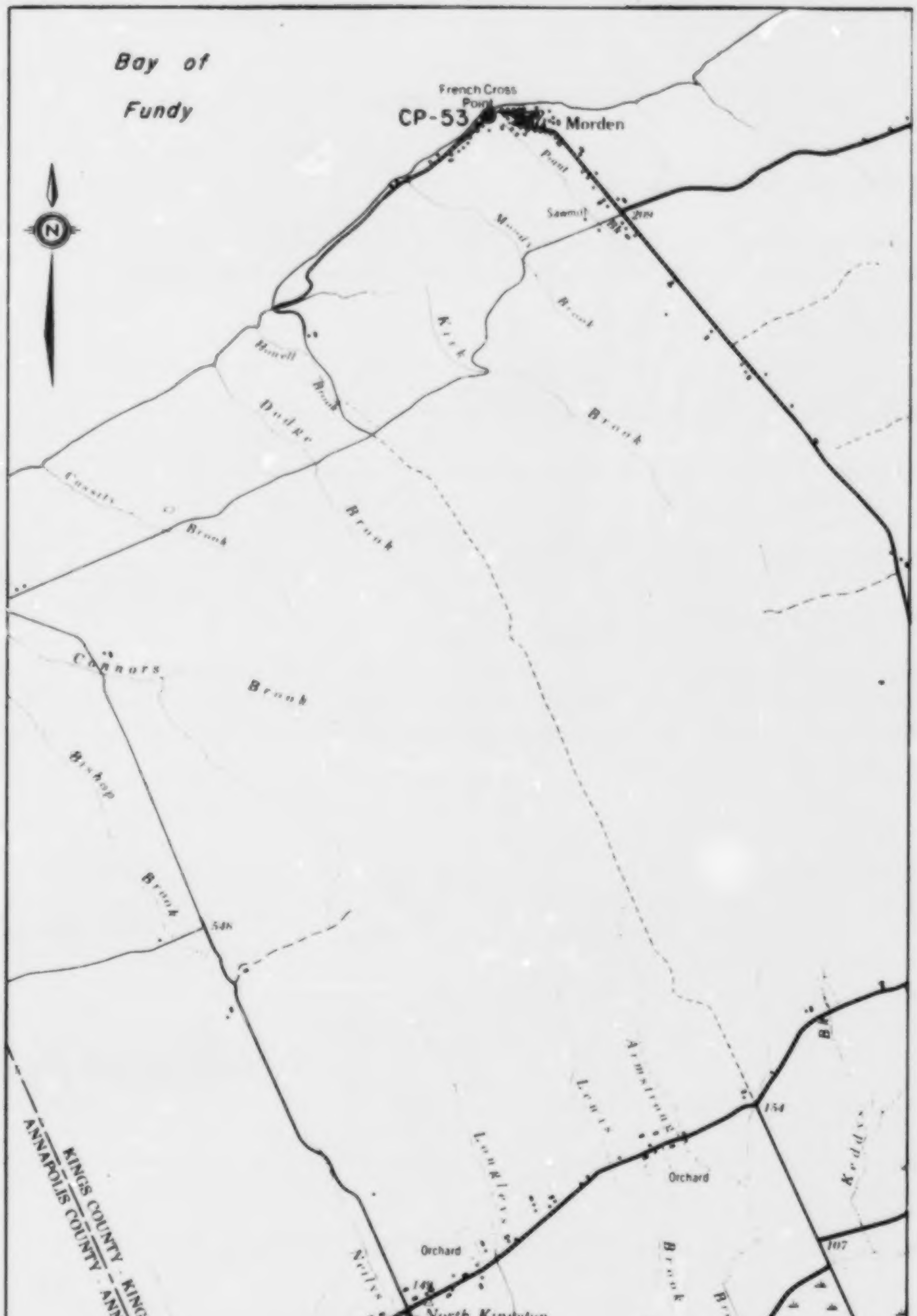
UNFIRED CHARACTERISTICS: Moderate red, calcareous clay containing a few stones. Very good workability. Highly plastic. Water of plasticity 28.8%. Safe drying. Air shrinkage 6.8%. Modulus of rupture 317 p.s.i. Benzidine test negative.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	4.12	7.18	Light moderate reddish brown	Steel hard
04	6.57	2.70	Moderate reddish brown	Steel hard
02	8.81	0.03	Dark moderate reddish brown	Steel hard

POTENTIAL USES: Earthenware, artware and structural products


Bay of Fundy
French Cross Point
CP-53
Morden
N
Point
Sawmill
Brook
Kirk
Brook
Howell
Brook
Dodge
Brook
Cassidy
Brook
Connors
Brook
Bishop
Brook
548
Armstrong
Lewis
Brook
Longleys
Orchard
Orchard
Orchards
Neilys
North Kingston
Brook
Ditch
Brook
Keddy
154
107
108
104
Dugout
Picnic Site
KINGS COUNTY - KINGS MUN
ANNAPOLIS COUNTY - ANNAPOLIS MUN
0
2
km

Ref. Map 21-H-2

Figure 53. Location map for sample CP-53 (Morden)

PICTOU COUNTY

Sample Number
CP-1

TOPOGRAPHICAL SHEET: 11E/10

LOCATION: A gravel pit adjacent to the cemetary, approximately 400 m southeast of the Aberdeen Hospital in New Glasgow (Fig. 54).

UTM: 527510 E
5046010 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Reddish-brown clay having outcrop dimensions of 90 cm by 60 cm and a thickness of 15 cm.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Brown, noncalcareous clay containing small stones. Very good workability. Very plastic. Water of plasticity 27.5%. Good extrudability. Safe drying. Air shrinkage 5.6%. Modulus of rupture 357 p.s.i. Benzidine test negative.

P.C.E.: 3+ (some bloating)

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
05	6.90	3.10	Moderate reddish brown	Steel hard
04	9.05	0.57	Moderate reddish brown	Steel hard
02	9.05	0.45	Moderate reddish brown	Steel hard

REMARKS: Slight scumming when fired. The extent of the occurrence appears to be small.

POTENTIAL USES: Earthenware, artware and most structural products.

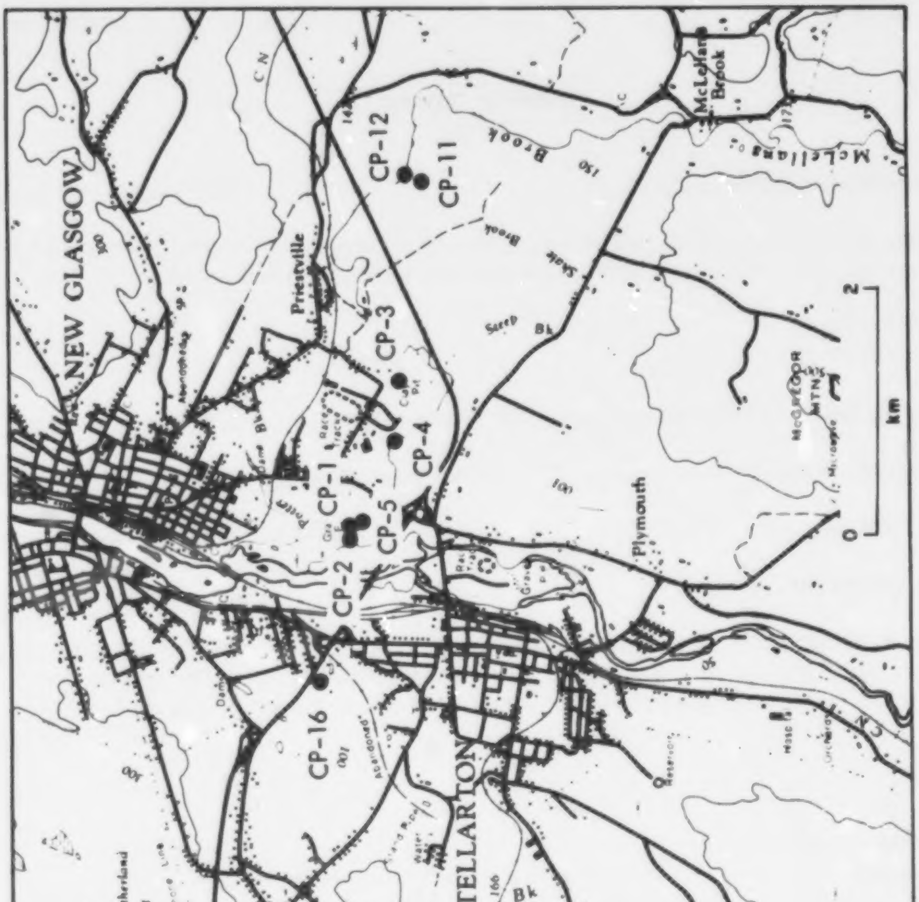

NEW GLASGOW
Priestville
STELLARTON
WESTVILLE
Plymouth
McLellans Brook
CP-1
CP-2
CP-3
CP-4
CP-5
CP-8
CP-11
CP-12
CP-16
104
Fox
Sutherland Bog
Middle River
McGREGOR MTN
0
2
km
Abandoned
CN

Figure 54. Location map for samples CP-1-5, 8, 11, 12, 16 (Stellarton)

Ref. Map 11-E-10

PICTOU COUNTY

Sample Number
CP-2

TOPOGRAPHICAL SHEET: 11E/10

LOCATION: A gravel pit adjacent to the cemetary approximately 400 m southeast of the Aberdeen Hospital in New Glasgow (Fig. 54).

UTM: 527460 E
5046010 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Medium grey clay containing some grit

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Grey, calcareous clay containing stones. Good workability. Plastic. Water of plasticity 21.3%. Cracks with rapid drying at 85°C. Air shrinkage 4.8%. Modulus of rupture 235 p.s.i. Benzidine test faint positive.

P.C.E.: 5

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
05	4.70	6.80	Moderate reddish orange	Steel hard
04	5.78	3.83	Pale reddish brown	Steel hard
02	7.55	0.72	Pale reddish brown	Steel hard

POTENTIAL USES: Suitable for most structural products.

PICTOU COUNTY

Sample Number
CP-3

TOPOGRAPHICAL SHEET: 11E/10

LOCATION: A clay pit located approximately 480 m southeast of the race track in New Glasgow (Fig. 54).

UTM: 528450 E
5045550 N

GEOLOGICAL UNIT: Stellarton Group, Pennsylvanian age

DESCRIPTION: Interbedded grey and brown shale

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Grey, noncalcareous shale. Fair workability. Fairly plastic. Water of plasticity 17.2%. Cracks with rapid drying at 85°C. Air shrinkage 4.5%. Modulus of rupture 139 p.s.i. Benzidine test negative.

P.C.E.: 3+ (bloating)

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
04	5.25	6.23	Moderate brown	Very hard
02	5.24	5.09	Moderate brown	Very hard
1	6.45	4.36	Dark brown	Steel hard

POTENTIAL USES: Used in the manufacture of building brick.

PICTOU COUNTY

Sample Number
CP-4

TOPOGRAPHICAL SHEET: 11E/10

LOCATION: Exposure on the southern side of McLellans Brook in New Glasgow (Fig. 54).

UTM: 528120 E
5045770 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Grey-brown clay containing grit. The outcrop is 2.4 m long, 1 m wide, and 30 cm thick.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Brown, noncalcareous clay containing sandy material and a few stones. Fair workability. Poorly plastic. Water of plasticity 23.6%. Slight cracking with rapid drying at 85°C. Air shrinkage 4.4%. Modulus of rupture 142 p.s.i. Benzidine test negative.

P.C.E.: 8+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	4.70	9.24	Moderate reddish brown	Very hard
1	5.05	8.77	Moderate reddish brown	Very hard
6	8.23	2.79	Dark reddish brown	Steel hard

POTENTIAL USES: None

PICTOU COUNTY

Sample Number
CP-5

TOPOGRAPHICAL SHEET: 11E/10

LOCATION: Shale forms the northeastern bank of a gravel pit adjacent to the cemetary, about 400 m southeast of Aberdeen Hospital in New Glasgow (Fig. 54).

UTM: 527510 E
5045990 N

GEOLOGICAL UNIT: Stellarton Group, Pennsylvanian age

DESCRIPTION: Dark to medium grey shale

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Grey, highly calcareous shale. Fair workability. Fairly plastic. Water of plasticity 14.4%. Safe drying. Air shrinkage 3.1%. Modulus of rupture 71 p.s.i. Benzidine test negative.

P.C.E.: 3+ (bloating)

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	1.55	11.27	Pale red	Hard to very hard
1	2.41	10.71	Pale red	Very hard
3	2.41	9.02	Pale red	Very hard

POTENTIAL USES: None

PICTOU COUNTY

Sample Number
CP-6

TOPOGRAPHICAL SHEET: 11E/10

LOCATION: McBean Coal Mine waste dump in Thorburn (Fig. 55).

UTM: 534800 E
5044780 N

GEOLOGICAL UNIT: Stellarton Group, Pennsylvanian age

DESCRIPTION: Dark grey shale mixed with coal and unconsolidated organic material.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

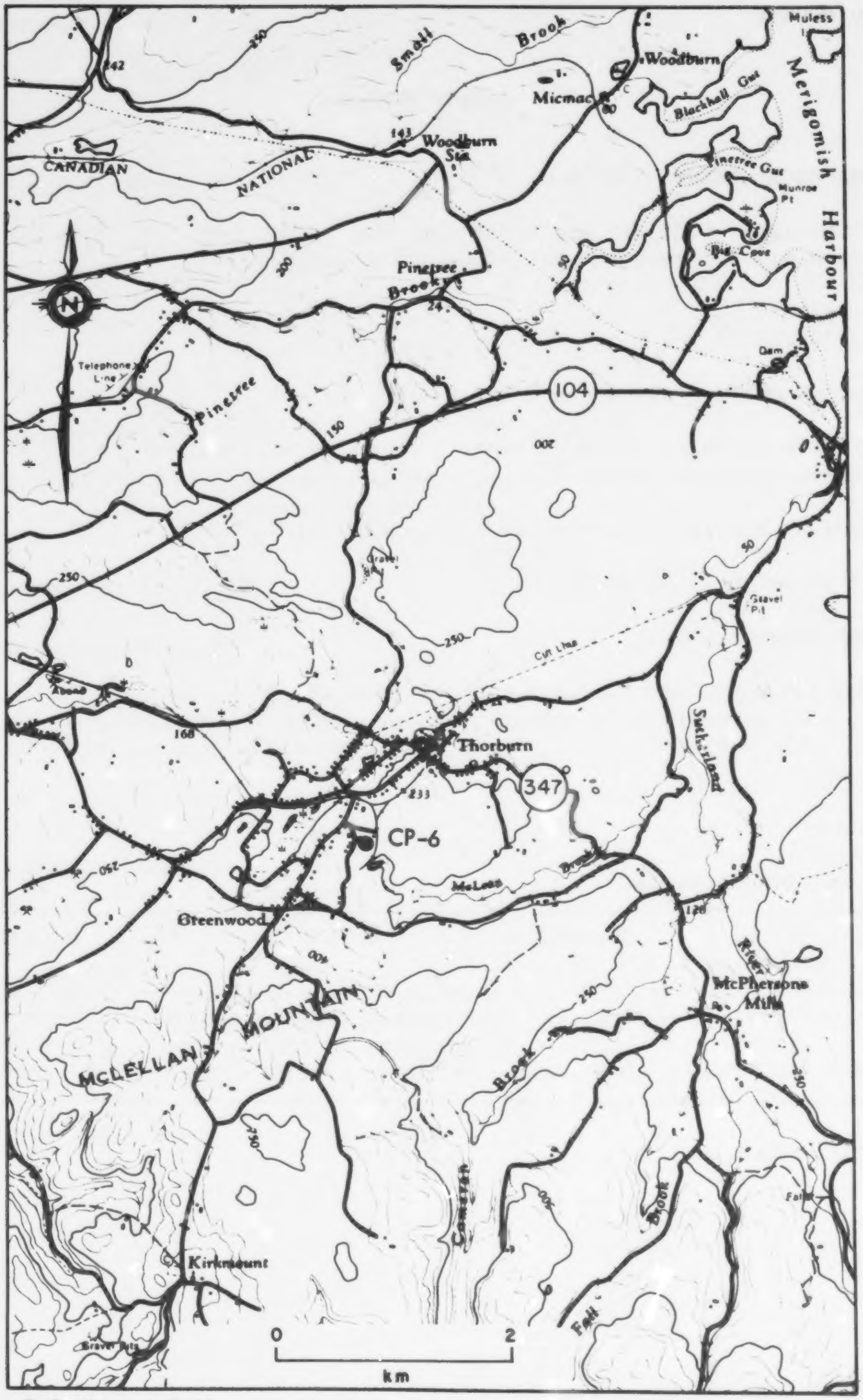
UNFIRED CHARACTERISTICS: Black, noncalcareous shale containing coal. Poor workability. Poorly plastic. Water of plasticity 16.0%. Safe drying. Air shrinkage 2.8%. Benzidine test negative.

P.C.E.: 5-6 (bloating)

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	3.61	13.17	Light brown	Hard to very hard
1	4.30	12.10	Brown	Very hard
3	5.64	11.16	Moderate pale reddish brown	Very hard

POTENTIAL USES: None


Muless
Small Brook
Woodburn
Micmac
Blackhall Gut
Merigomish Harbour
Woodburn Sta.
CANADIAN
NATIONAL
Pinetree Gut
Munroe Pt
Big Cove
N
Pinetree Brook
Telephone Line
Pinetree
104
Gravel Pit
Cut Line
Thorburn
347
CP-6
McLean Brook
Sutherland
Greenwood
River
McPhersons Mills
MOUNTAIN
McLELLAN
Brook
Cameron
Fall Brook
Kirkmount
0
2
km

Ref. Map 11-E-10

Figure 55. Location map for sample CP-6 (Thorburn)

PICTOU COUNTY

Sample Number
CP-8

TOPOGRAPHICAL SHEET: 11E/10

LOCATION: About 61 m north of Highway 104, east of Middle River, approximately 3.2 km northwest of Westville (Fig. 54).

UTM: 520310 E
5046750 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Reddish-brown, sandy clay occurring in a thin band approximately 15 cm thick

ATTITUDE OF BEDDING: Essentially horizontal

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Brown, noncalcareous clay containing soil material. Poor workability. Poorly plastic. Water of plasticity 24.0%. Safe drying. Air shrinkage 4.0%. Modulus of rupture 92 p.s.i. Benzidine test negative.

P.C.E.: 12

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	1.57	15.97	Moderate reddish orange	Soft
1	1.39	16.06	Moderate reddish orange	Hard
6	4.15	11.06	Moderate reddish brown	Hard

POTENTIAL USES: None

PICTOU COUNTY

Sample Number
CP-10

TOPOGRAPHICAL SHEET: 11E/10

LOCATION: Exposure 46 m south of the Rockfield Road, on Quarry Brook. Located 2 km northwest of the intersection of Rockfield Road and Route 376, near Durham (Fig. 56).

UTM: 512060 E
5051130 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Mottled grey-brown, sandy clay. Contains organic material and shows iron carbonate stains. Outcrop occurs intermittently along Quarry Brook for approximately 31 m.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

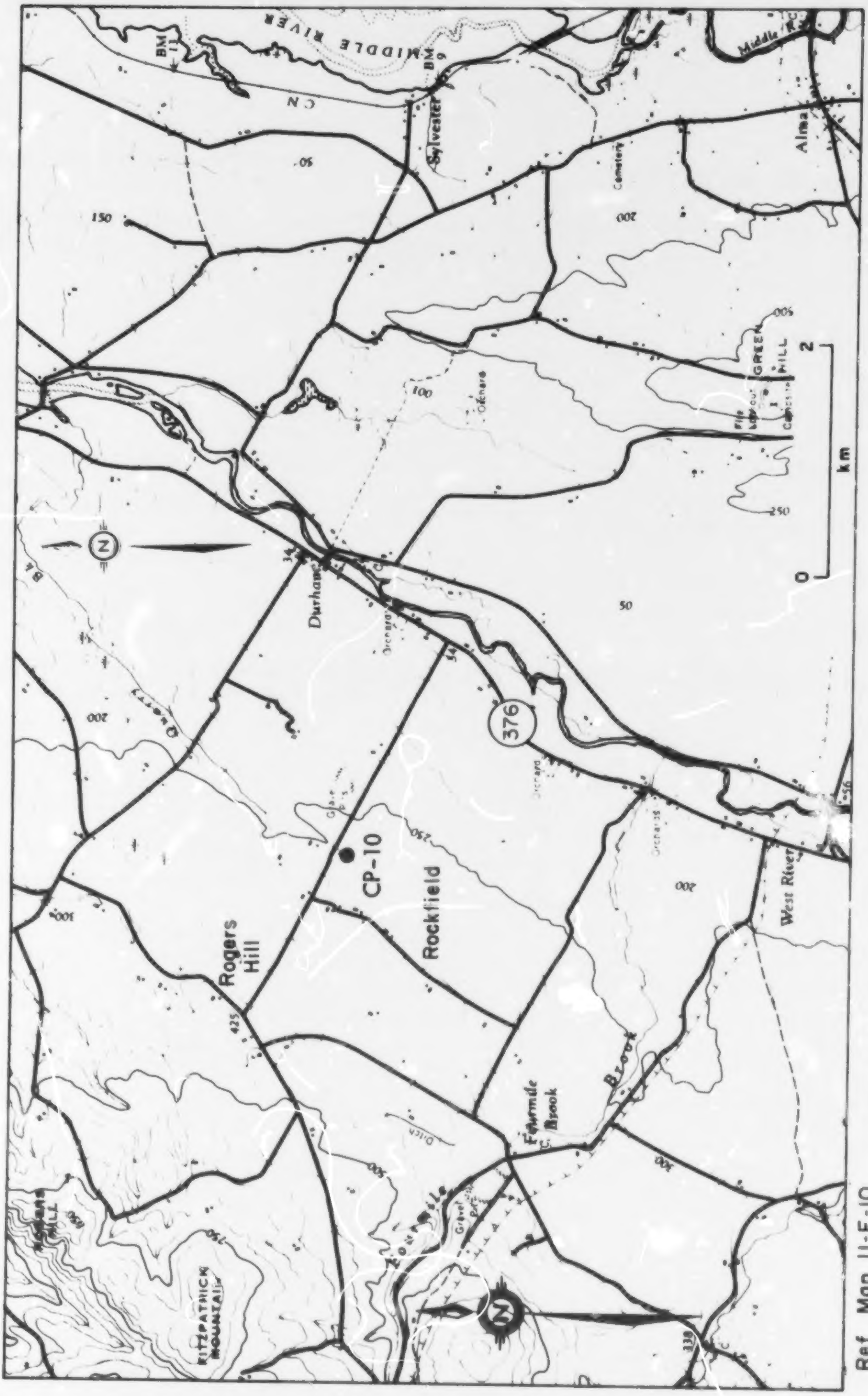
UNFIRED CHARACTERISTICS: Brown, noncalcareous clay containing sandy material. Poor workability. Poorly plastic. Water of plasticity 22.8%. Safe drying. Air shrinkage 5.4%. Benzidine test negative.

P.C.E.: 11-12

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	1.41	14.33	Moderate reddish orange	Hard
1	1.77	12.98	Moderate reddish brown	Hard
6	3.88	8.49	Dark moderate red	Hard

POTENTIAL USES: None


MIDDLE RIVER
BM 11
CN
BM 9
Sylvester
Alma
Middle R
Cemetery
200
150
50
100
Orchard
GREEN HILL
Fire Lookout
500
250
0
2
km
N
Durham
34
376
54
50
Quarry
200
CP-10
Rockfield
Rogers Hill
425
West River
Fourmile Brook
Brook
Ditch
300
Gravel Pit
750
KITZPATRICK MOUNTAIN
338

Ref Map 11-E-10

Figure 56. Location map for sample CP-10 (Durham)

PICTOU COUNTY

Sample Number
CP-11

TOPOGRAPHICAL SHEET: 11E/10

LOCATION: Outcrop occurs along the Shale Brook about 2.2 km north of the road which goes to Stellarton from McLellans Brook (Fig. 54).

UTM: 530290 E
5045560 N

GEOLOGICAL UNIT: Stellarton Group, Pennsylvanian age

DESCRIPTION: Dark grey, fossiliferous shale. Thinly to medium bedded and fissile. Outcrop is continuous for 270 m and has a visible thickness of 1.5 m.

ATTITUDE OF BEDDING: 045°/03° SE

SAMPLE INTERVAL: 1.5 m channel sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Dark grey, calcareous shale. Poor workability. Poorly plastic. Water of plasticity 16.4%. Safe drying. Air shrinkage 3.3%. Benzidine test negative.

P.C.E.: 2+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
04	4.64	10.53	Pale reddish brown	Hard
02	2.77	10.10	Pale reddish brown	Very hard
1	4.66	8.43	Moderate reddish brown	Very hard

POTENTIAL USES: None

PICTOU COUNTY

Sample Number
CP-12

TOPOGRAPHICAL SHEET: 11E/10

LOCATION: Southeast of Priestville, at the intersection of McLellans Brook and Shale Brook (Fig. 54).

UTM: 530320 E
5045660 N

GEOLOGICAL UNIT: Stellarton Group, Pennsylvanian age

DESCRIPTION: Dark blue-grey shale showing extensive iron carbonate staining in some beds. It is thinly bedded with a total thickness of 6 m.

ATTITUDE OF BEDDING: 044°/03° SE

SAMPLE INTERVAL: Channel sample across the lower 90 cm of the exposure.

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Brownish-grey, slightly calcareous shale. Poor workability. Fairly plastic. Water of plasticity 14.4%. Safe drying. Air shrinkage 2.7%. Benzidine test negative.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
04	2.75	8.81	Pale reddish brown	Hard to very hard
02	4.10	7.07	Pale reddish brown	Very hard
1	3.44	6.80	Pale reddish brown	Steel hard

POTENTIAL USES: Common brick and face brick.

PICTOU COUNTY

Sample Number
CP-16

TOPOGRAPHICAL SHEET: 11E/10

LOCATION: A coal mine dump behind the Heather Motel in Stellarton (Fig. 54).

UTM: 526240 E
5046330 N

GEOLOGICAL UNIT: Stellarton Group, Pennsylvanian age

DESCRIPTION: Grey to dark grey, iron stained shale. It contains carbonaceous material, pieces of coal, wood and rock.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Dark grey, slightly calcareous shale. Poor workability. Poorly plastic. Water of plasticity 14.0%. Safe drying. Air shrinkage 2.1%. Benzidine test negative.

P.C.E.: 4-

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	4.44	11.08	Pale reddish brown	Hard
1	4.94	9.91	Pale reddish brown	Very hard
3	5.11	9.10	Moderate red	Very hard

POTENTIAL USES: None

RICHMOND COUNTY

Sample Number
CP-103

TOPOGRAPHICAL SHEET: 11F/10

LOCATION: Scotts River, about 8 km north of St. Peters. On the road to Roberta from French Cove there is a bridge which crosses the River. The exposure is about 2.2 km south of the bridge on the bank of Scotts River (Fig. 57).

UTM: 665470 E
5066600 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Thinly bedded, friable, dark grey shale. It exhibits iron carbonate stains and small scale folding. The outcrop is continuous on the eastern bank of Scotts River for about 30 m.

ATTITUDE OF BEDDING: 230°/21° NW

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

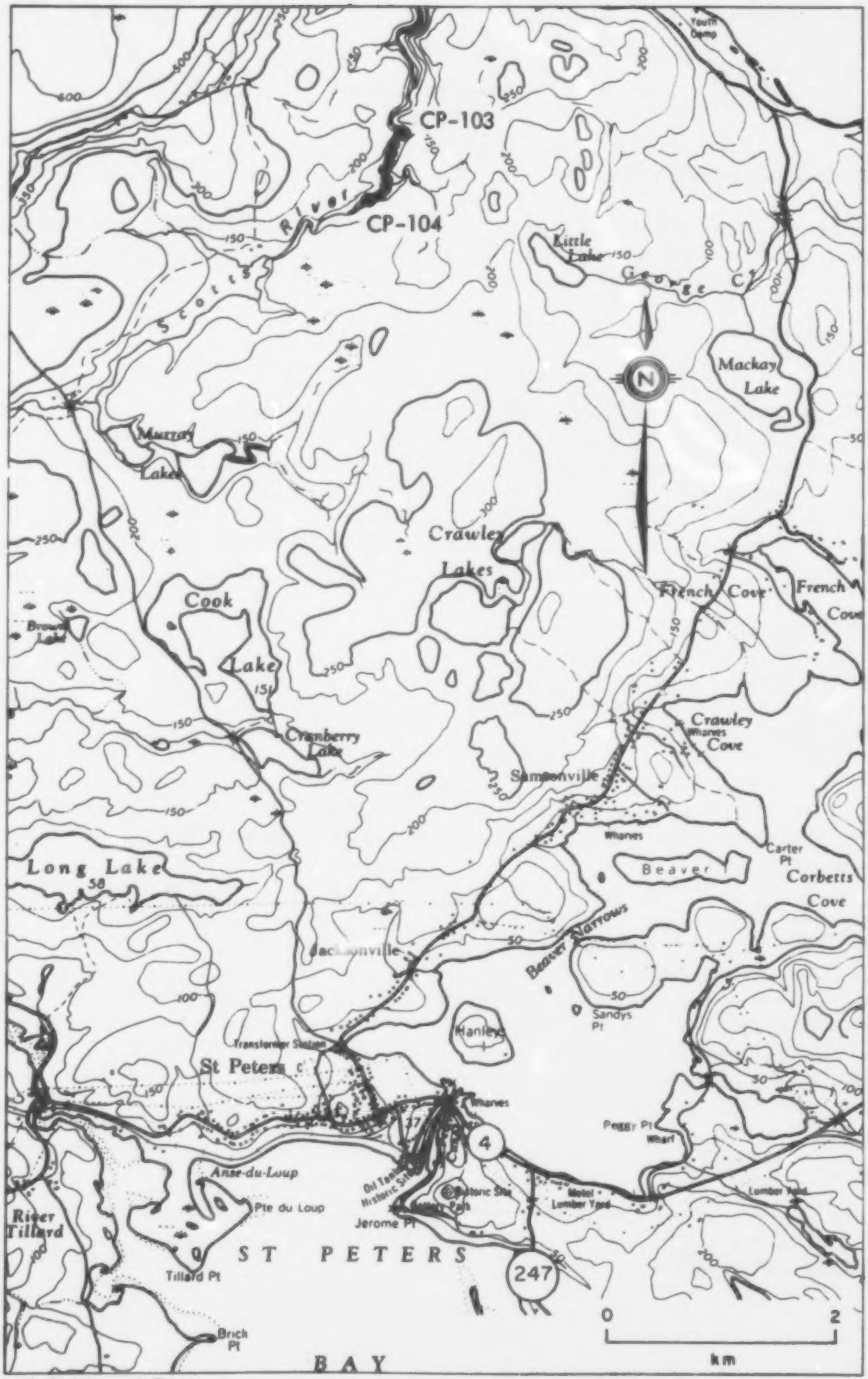
UNFIRED CHARACTERISTICS: Medium dark grey, highly calcareous (sulphide smell) shale. Fair workability. Plastic. Water of plasticity 19.2%. Cracks with rapid drying at 85°C. Air shrinkage 4.3%. Modulus of rupture 130 p.s.i. Benzidine test negative.

P.C.E.: 3+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	2.26	12.73	Light brown	Hard
1	1.98	12.22	Light brown	Hard to very hard
3	3.13	9.07	Light brown	Hard to very hard

POTENTIAL USES: None


CP-103
CP-104
Scotts River
Little Lake
George C
Mackay Lake
Murray Lake
Crawley Lakes
Cook Lake
Cranberry Lake
Long Lake
French Cove
Crawley Cove
Samsonville
Beaver
Corbetts Cove
Carter Pt
Beaver Narrows
Jacksonville
Sandys Pt
Hanley
Transformer Station
St Peters
Wharves
Peggy Pt
Anse-du-Loup
Pte du Loup
River Tillard
Jerome Pt
Tillard Pt
Birch Pt
ST PETERS
BAY
Lumber Yard
Motel
Historic Site
Youth Camp
4
247
0
2
km

Ref. Map 11-F-10

Figure 57. Location map for samples CP-103, 104 (St. Peters, Cape Breton Island)

RICHMOND COUNTY

Sample Number
CP-104

TOPOGRAPHICAL SHEET: 11F/10

LOCATION: Scotts River, about 8 km north of St. Peters. On the road to Roberta from French Cove there is a bridge which crosses the River. The exposure is about 2.9 km south of the bridge, on Scotts River (Fig. 57).

UTM: 665170 E
5065950 N

GEOLOGICAL UNIT: Riversdale Group, Pennsylvanian age

DESCRIPTION: Thin to medium bedded, friable, red shale containing small grey-green pods and lenses. The shale is 3 m thick and extends for approximately 9 m along the eastern bank of Scotts River. It is overlain by 3 m of dark grey shale which is overlain by medium grey, fine grained sandstone.

ATTITUDE OF BEDDING: 210°/30° NW

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Pale yellowish-brown, noncalcareous shale and siltstone. Fair workability. Poorly plastic. Water of plasticity 19.6%. Safe drying. Air shrinkage 4.7%. Modulus of rupture 86 p.s.i. Benzidine test negative.

P.C.E.: 1+

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	1.75	10.86	Light moderate reddish brown	Hard
04	3.69	8.09	Moderate reddish brown	Hard
02	5.42	4.60	Moderate reddish brown	Steel hard

POTENTIAL USES: None

VICTORIA COUNTY

Sample Number
CP-87

TOPOGRAPHICAL SHEET: 11F/15

LOCATION: The occurrence is along the eastern shore of St. Patricks Channel, approximately 3.2 km south of Little Narrows (Fig. 58).

UTM: 655700 E
5091790 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Grey, thinly bedded, highly fissile, micaceous shale. On some surfaces the shale has weathered to clay. The outcrop extends for about 46 m along the shore of St. Patricks Channel.

ATTITUDE OF BEDDING: 125°/55° SW

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

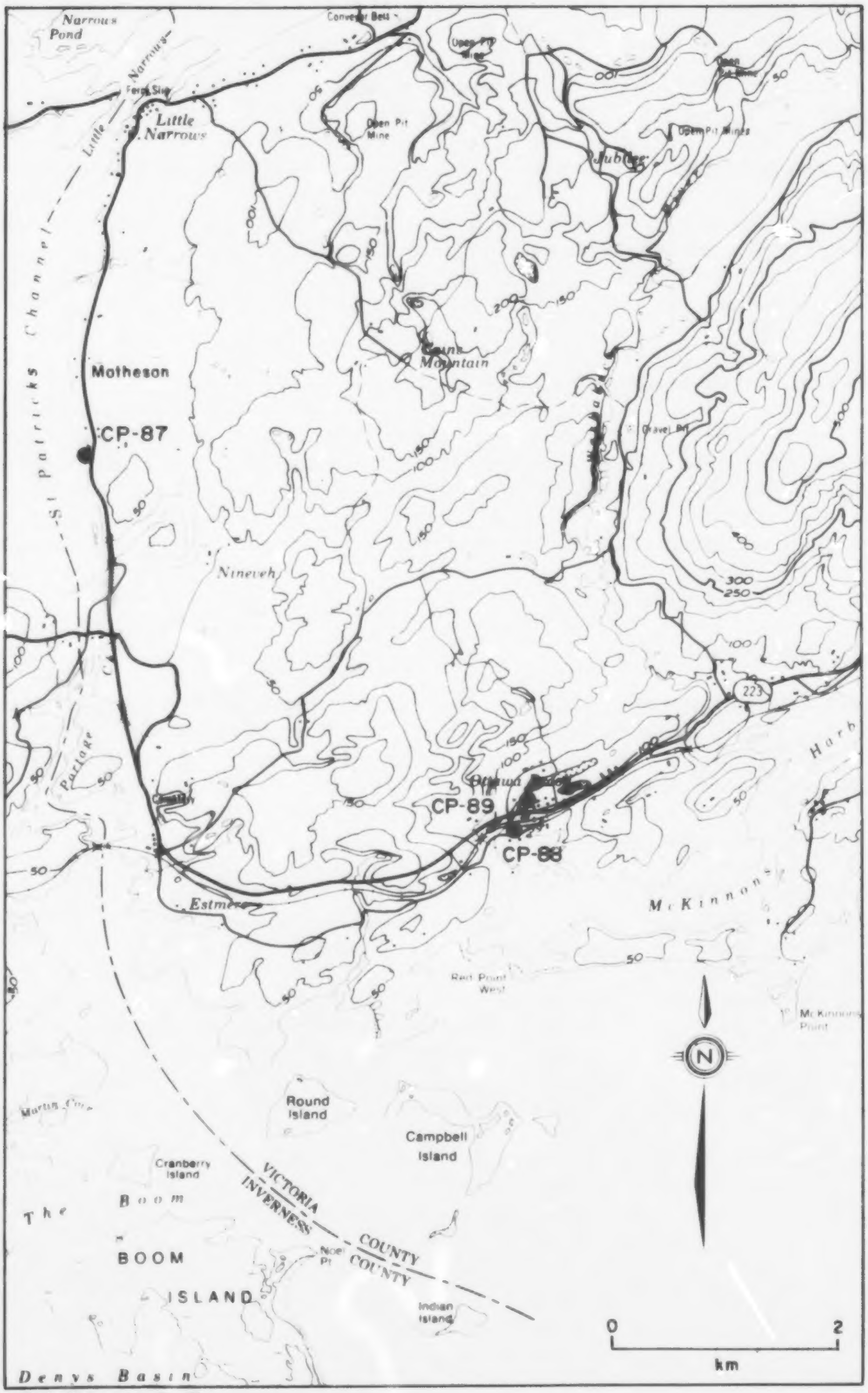
UNFIRED CHARACTERISTICS: Light grey, highly calcareous shale. Very good workability. Highly plastic. Water of plasticity 26.8%. Safe drying. Air shrinkage 5.5%. Modulus of rupture 197 p.s.i. Benzidine test negative.

P.C.E.: 2-3 (some bloating)

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	7.91	1.38	Moderate reddish brown	Steel hard
04	7.61	1.08	Dark reddish brown	Steel hard
02	+0.71	0.39	Dark reddish brown	Steel hard

POTENTIAL USES: None


Narrows Pond
Conveyor Belt
Ferry Slip
Little Narrows
Little Narrows
Open Pit Mine
Open Pit Mine
Open Pit Mines
Open Pit Mines
Jubilee
St Patricks Channel
Motheson
CP-87
Nineveh
Mountain
Gravel Pit
Portage
CP-89
CP-88
Estmere
223
McKinnons Harb
Red Point West
McKinnons Point
N
Round Island
Campbell Island
Cranberry Island
Martin Cove
The Boom
BOOM ISLAND
Noel Pt
VICTORIA COUNTY
INVERNESS COUNTY
Indian Island
Denys Basin
0
2
km

Ref. Map 11-F-15

Figure 58. Location map for samples CP-87-89 (Estmere, Cape Breton Island)

VICTORIA COUNTY

Sample Number
CP-88

TOPOGRAPHICAL SHEET: 11F/15

LOCATION: Southwest of the train overpass at Ottawa Brook, on the northern side of the road which goes to Estmere from Route 223 (Fig. 58).

UTM: 659540 E
5088650 N

GEOLOGICAL UNIT: Clay, Quaternary age

DESCRIPTION: Mottled red and grey clay extending for approximately 61 m along the road.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Light brown (after grinding and mixing), calcareous clay containing a few stones. Very good workability. Very plastic. Water of plasticity 24.8%. Safe drying. Air shrinkage 6.4%. Modulus of rupture 239 p.s.i. Benzidine test negative.

P.C.E.: 5

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	4.63	5.97	Moderate reddish brown	Steel hard
04	5.08	5.03	Moderate reddish brown	Steel hard
02	8.01	0.99	Dark moderate reddish brown	Steel hard

POTENTIAL USES: None

VICTORIA COUNTY

Sample Number
CP-89

TOPOGRAPHICAL SHEET: 11F/15

LOCATION: Exposure on the northern side of Route 223, approximately 400 m west of the school at Ottawa Brook (Fig. 58).

UTM: 659640 E
5088810 N

GEOLOGICAL UNIT: Windsor Group, Mississippian age

DESCRIPTION: Grey shale containing fragments of gypsum. Upon weathering the shale breaks down to grey clayey-shale. The outcrop is discontinuous along the road for approximately 61 m.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Shale

UNFIRED CHARACTERISTICS: Light grey, highly calcareous clayey-shale containing gypsum. Good workability. Plastic. Water of plasticity 24.0%. Safe drying. Air shrinkage 6.2%. Modulus of rupture 275 p.s.i. Benzidine test negative.

P.C.E.: 3-4

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
02	2.68	8.88	Moderate reddish orange	Hard to very hard
1	1.78	8.65	Moderate reddish orange	Very hard
3	6.04	3.31	Dark moderate reddish orange	Steel hard

POTENTIAL USES: Structural products

VICTORIA COUNTY

Sample Number
CP-90

TOPOGRAPHICAL SHEET: 11K/07

LOCATION: On the northern side of the road to Faders Point at Oyster Pond approximately 3.2 km northeast of the Englishtown Ferry (Fig. 59).

UTM: 691990 E
5130610 N

GEOLOGICAL UNIT: Pleistocene clay, Quaternary age

DESCRIPTION: Micaceous, red clay containing organic and carbonaceous material. Thickness of the clay was determined to be about 15 cm.

SAMPLE INTERVAL: Grab sample

TYPE OF MATERIAL: Clay

UNFIRED CHARACTERISTICS: Pale reddish-brown, noncalcareous clay containing sandy material. Very good workability. Highly plastic. Safe drying. Air shrinkage 8.3%. Modulus of rupture 324 p.s.i. Benzidine test negative.

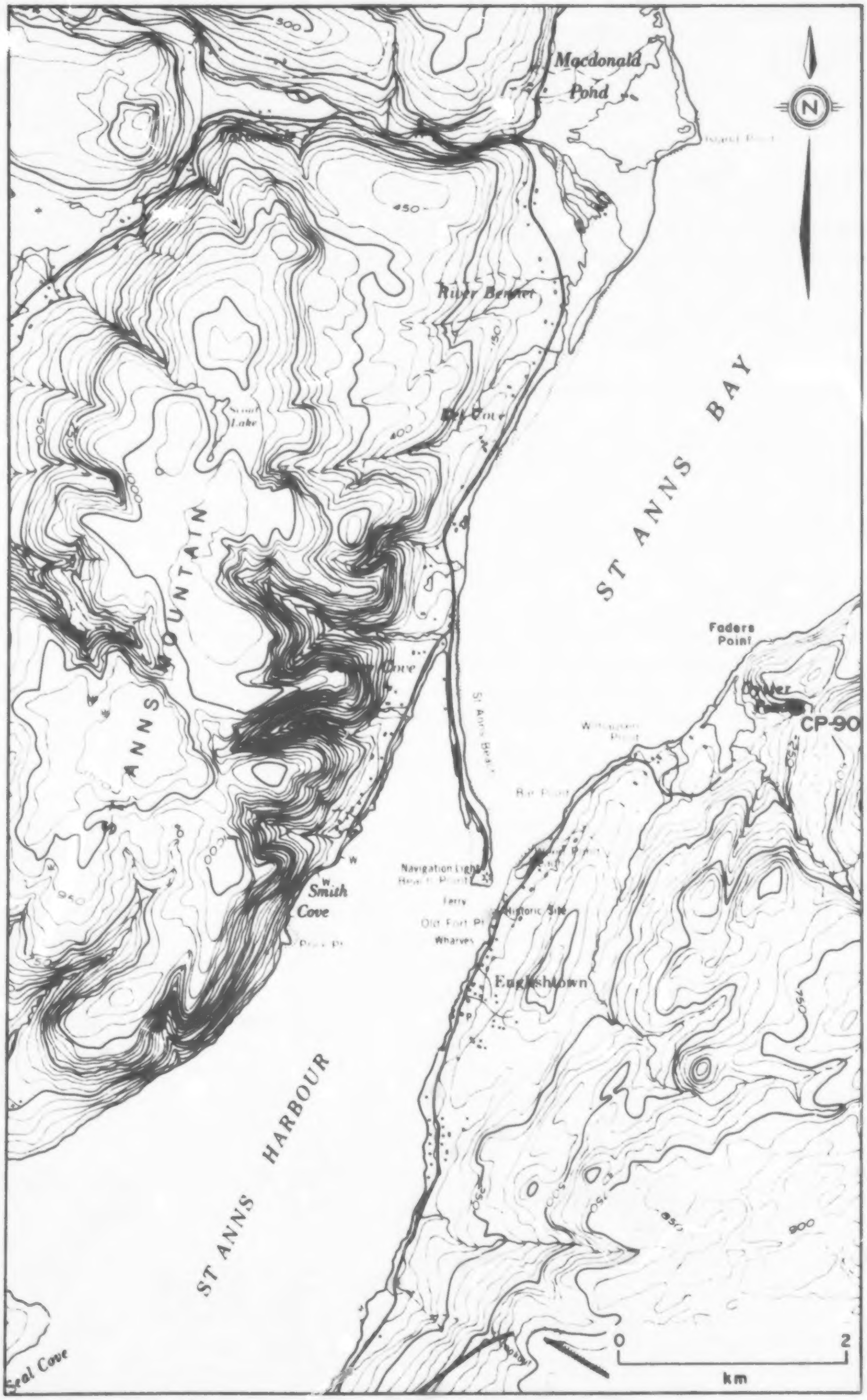
P.C.E.: 2-3

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	6.72	4.75	Dark moderate reddish brown	Steel hard
04	9.01	0.13	Dark reddish brown	Steel hard
02	9.46	0.02	Dark reddish brown	Steel hard

REMARKS: The clay does not appear to be very extensive.

POTENTIAL USES: Earthenware, artware and structural products.


500
Macdonald Pond
N
450
River Bennet
Scout Lake
400
ST ANNS MOUNTAIN
ST ANNS BAY
Faders Point
CP-90
Wilkinson Point
St Anns Beach
Navigation Light
Ferry
Smith Cove
Historic Site
Old Fort Pt
Wharves
Englishtown
950
ST ANNS HARBOUR
850
900
Seal Cove
0
2
km

Ref. Map 11-K-7

Figure 59. Location map for sample CP-90 (Faders Pt., Cape Breton Island)

VICTORIA COUNTY

Sample Number
CP-91

TOPOGRAPHICAL SHEET: 11K/08

LOCATION: The exposure is approximately 122 m southwest of the lighthouse at Black Rock Point (Fig. 60).

UTM: 700670 E
5131060 N

GEOLOGICAL UNIT: Morien Group, Pennsylvanian age

DESCRIPTION: Grey to black shale, overlain by 20-30 cm of medium grey clay. The shale ranges in thickness from 30 cm to 3.6 m, is thinly bedded, very fissile, and shows extensive iron carbonate staining. The clay and shale are separated by a coal seam averaging 25 cm in thickness. The shale outcrops for 85 m along shore.

ATTITUDE OF BEDDING: Horizontal

SAMPLE INTERVAL: Channel sample across the top 46 cm

TYPE OF MATERIAL: Clay and shale

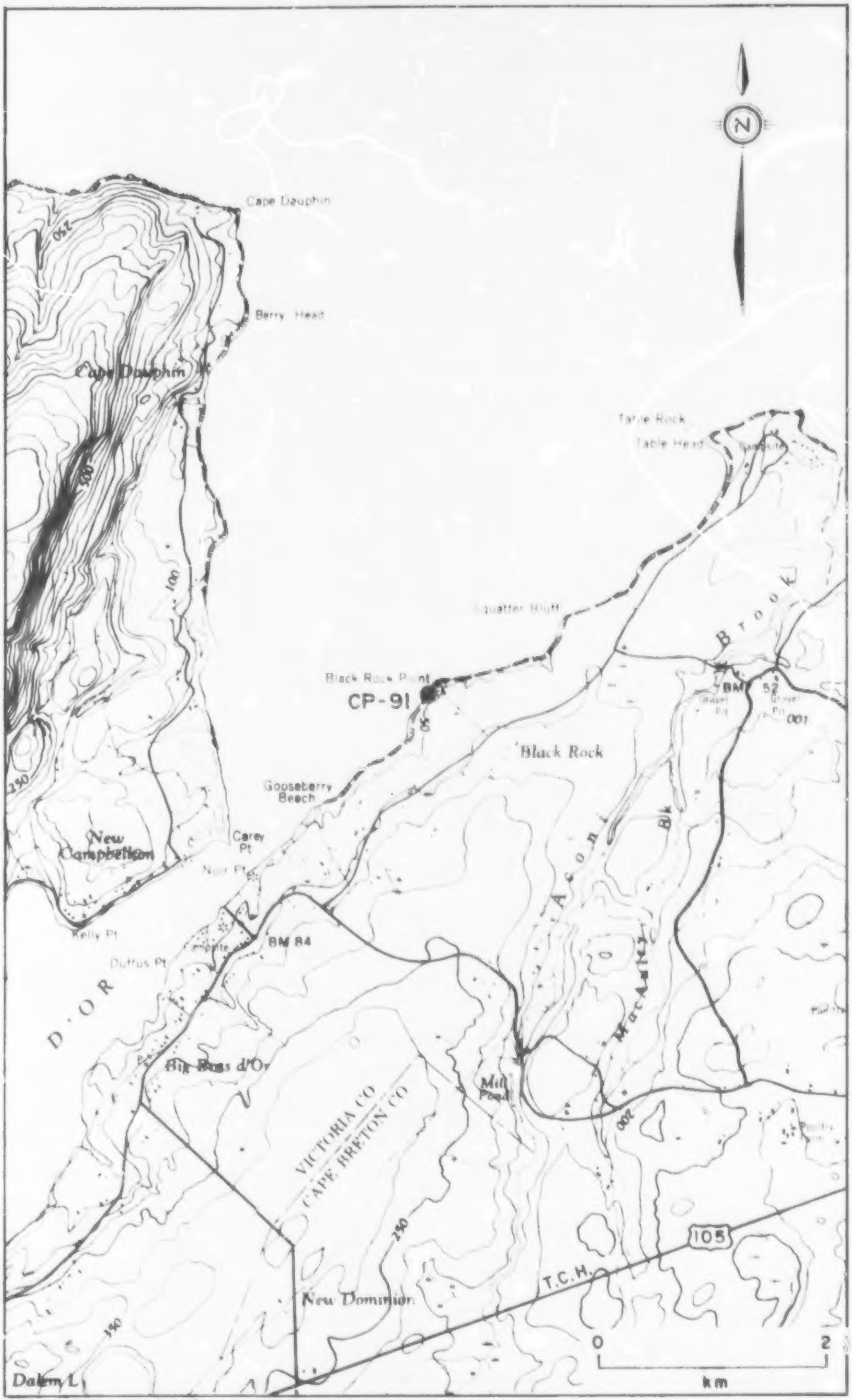
UNFIRED CHARACTERISTICS: Light grey, noncalcareous clay and shale. Good workability. Plastic. Water of plasticity 22.0%. Safe drying. Air shrinkage 4.6%. Modulus of rupture 131 p.s.i. Benzidine test faint positive.

P.C.E.: 14

FIRED CHARACTERISTICS:

Cone No.	Fired Shrinkage %	Absorption %	Colour	Hardness
06	2.62	11.00	Moderate orange pink	Hard
04	4.20	7.88	Moderate reddish orange	Very hard
02	5.25	5.13	Pale reddish brown	Steel hard

POTENTIAL USES: Structural products


N
Cape Dauphin
Berry Head
Cape Dauphin
Table Rock
Table Head
Squatter Bluff
Black Rock Point
CP-91
Brook
BM
52
Gravel Pit
Black Rock
Gooseberry Beach
Carey Pt
Noir Pt
New Campbellton
Kelly Pt
Duffus Pt
BM 84
D'OR
Big Bras d'Or
MacAulay
Mill Pond
VICTORIA CO
CAPE BRETON CO
105
T.C.H.
New Dominion
Dalem L
0
2
km
250
500
100
250
250

Ref Map II-K-8

Figure 60. Location map for sample CP-91 (Black Rock Pt., Cape Breton Island)

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APPENDIX 1. CRITERIA USED IN EVALUATING POTTERY CLAY

	Whiteware	Stoneware	Earthenware	Artware
Unfired Properties				
Workability	Highly plastic and smooth working	Highly plastic and smooth working	Very plastic and smooth working	Very plastic and smooth working
Water of plasticity	Not critical	Not critical	Not critical	Not critical
Green strength wet and dry	Average	Above average	Average	Above average
Drying characteristics	Dry free from defects under controlled drying	Dry free from defects at normal drying rates	Dry free from defects at normal drying rates	Dry free from defects at normal drying rates
% Drying shrinkage	3-12	3-8	2-10	0-15
Fired Properties				
Maturing temperature °F	1800-2500	2100-2300	1800-2200	1800-2100
Shrinkage %	0-8	1-8	1-8	0-20
Absorption (unglazed) %	0-2	0-2	0-5	Not critical
Colours	White, blue, yellow	Buff, grey	Red, brown, buff	Variety

APPENDIX 2. CRITERIA USED IN EVALUATING STRUCTURAL CLAY

	Common Brick	Face Brick	Decorative Brick	Hollow Tile	Wall Tile	Drain Tile	Roofing Tile
Unfired Properties							
Workability	Fairly plastic to plastic	Fairly plastic to plastic	Fairly plastic to plastic	Plastic to very plastic and smooth	Plastic to very plastic and smooth	Plastic to very plastic and smooth	Plastic to very plastic and smooth
Water of plasticity	15-40	15-40	15-40	Up to 35	Up to 35	15-40	Up to 35
Green strength wet and dry	Low to high	Low to high	Low to high	Average to high	Average to high	Average to high	Average to high
Drying characteristics	No warping or cracking	No warping or cracking	No warping or cracking	No warping or cracking	No warping or cracking	No warping or cracking	No warping or cracking
Dry shrinkage %	0-12	0-12	0-12	0-8	0-8	0-8	0-8
Fired Properties							
Maturing temp.°F	1800-2000	1800-2200	1800-2200	1800-2100	1800-2100	1800-2000	1800-2200
Hardness	Very hard to steel hard	Steel hard	Steel hard	Steel hard	Steel hard	Very hard	Steel hard
Absorption %	Up to 20	Up to 15	Up to 15	Up to 15	0-10	0-12	0-10
Shrinkage %	0-10	0-10	0-10	0-10	0-10	0-8	0-8
Colours	Red to brown	Red, brown, buff, cream	Unusual colours, pinks, greys	Not critical red, brown-red	White, buff, red, cream	Buff to red, brown	Buff, red, brown
Scumming	Slight	None	None	Slight	None	Slight	None

APPENDIX 2. CONTINUED

	Floor Tile	Chimney Tile	Terra Cotta	Conduit	Sewer Pipe
Unfired Properties					
Workability	Plastic to very plastic and smooth	Plastic to very plastic and smooth	Very plastic and smooth	Very plastic and smooth	Plastic to very plastic and smooth
Water of plasticity	Up to 35	15-40	18-35	15-40	Up to 35
Green strength wet and dry	Average to high	Average to high	Average to high	Average to high	Average to high
Drying characteristics	No warping or cracking	No warping or cracking	No warping or cracking	No warping or cracking	No warping or cracking
Drying shrinkage %	0-8	0-8	Up to 8	0-4	0-8
Fired Properties					
Maturing temp.°F	1800-2200	1800-2400	2000-2200	1800-2200	1800-2100
Hardness	Steel hard	Very hard	Steel hard	Steel hard	Steel hard
Absorption %	0-20	0-20	8-25	0-4	0-8
Shrinkage %	0-8	0-8	0-8	0-10	0-10
Colours	Red, buff, dark brown	Not critical, buff, red	Red, buff, grey-buff, offwhite	Not critical	Red, red-brown
Scumming	None	None	None	None	None

APPENDIX 3. CRITERIA USED IN EVALUATING LIGHTWEIGHT AGGREGATE CLAY

	Rotary Kiln Process	Sintering Process
Unfired Properties		
Drying characteristics	Dry readily and show only slight disintegration	Not critical, water used to pelletize before firing
Dry strength	Strength must be sufficient for proper sizing when crushed for kiln feed	Not critical
Crushing characteristics	8 mesh material should not exceed 20%	Not critical except where particles tend to be thin and platy
Fired Properties		
Firing range	1800-2200°F	Vitreous and glazes between 2200 and 2300°F
Bloating range	Minimum 100°F 200°F preferred	Not critical
Weight	75-45 lb/ft	
Expansion	Gradual weight decrease through bloating range	Slight
Absorption %	0-18 at best bloating temperature	0-6
Colour	Light red to light grey preferred, although colour not too critical	Light red grey, red, although colour not too critical
Strength	Determined by concrete performance test	Determined by concrete performance test